



# STIC Search Report

## EIC 3700

STIC Database Tracking Number: 158798

**TO: Andrea Ragonese**  
**Location: RND 7c59**  
**Art Unit: 3743**  
**Thursday, July 28, 2005**

**Case Serial Number: 09/828470**

**From: Ethel Leslie**  
**Location: EIC 3700**  
**RND 8A34**  
**Phone: 571-272-5992**

**Ethel.leslie@uspto.gov**

### Search Notes

Andrea,

Attached is the completed search for the bone repair method. I searched the inventors in the patent literature and the results are attached. I did an extensive search on the requested topic in bibliographic and full-text databases as well as on the Internet. I found a few items in the patent literature that I think might be of interest to you – they are marked with red flags. I was unable to find anything in the NPL that met the specifications in your email, but I printed out results that may be interesting to you. Please look over all the results as there may be other items of interest. I have attached the search strategies used for the searches performed.

If you have a moment, please fill out the attached STIC Feedback Form. If there is anything I can do to refine or revise this search, please let me know.

Sincerely,  
Ethel Leslie

A handwritten signature in black ink that reads "Ethel".

## Solomon, Terrance

**From:** Unknown@Unknown.com  
**Sent:** Monday, July 11, 2005 3:59 PM  
**To:** STIC-EIC3700  
**Subject:** Generic form response

ResponseHeader=Commercial Database Search Request

AccessDB#= 158798

LogNumber= \_\_\_\_\_

Searcher= \_\_\_\_\_

SearcherPhone= \_\_\_\_\_

SearcherBranch= \_\_\_\_\_

MyDate=Mon Jul 11 15:57:23 EDT 2005

submitto=STIC-EIC3700@uspto.gov

Name=Andrea Ragonese

Empno=77465

Phone=571-272-4804

Artunit=3743

Office=RND 7C59

Serialnum=09828470

PatClass=606/192

Earliest=4/7/2000

Format1=paper

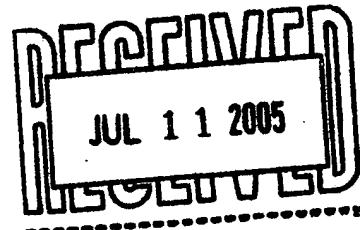
Searchtopic=Please see claims filed on April 18, 2005:

Claim 1 recites a method for repairing a bone by introducing an expandable/inflatable structure into a cancellous bone into to create a void/pocket/hole to fill with bone cement.

These claims are depicted best in Figures 2 and 7.

Comments=

send=SEND



Set	Items	Description
S1	44	KYPHOPLAST? OR VERTEBROPLAST? OR (KYPHO OR VERTEBRO) () (PLAST???)
S2	2252171	EXPAND? OR INFLAT? OR DISTEND? OR DISTENSION? OR OPEN???? - OR INSUFFLAT? OR DILAT???
S3	25465	BOLUS? OR BALLOON? OR TAMP? ? OR TAMPING
S4	3307	(CANCEL???? OR TRABECULA? OR SPONG? OR POROUS? OR LATTICE(-) WORK? OR MEDULLA?) (N) (BONE? ? OR SUBSTAN?)
S5	1491397	CATHETER? OR CANNULA? OR CANULA? OR SHEATH? OR SHUNT? OR TUBE OR TUBES OR CONDUIT? OR STENT? OR TUBING OR TUBULAR OR HOLLOW
S6	221772	IC=A61F? OR A61M? OR A61D? OR A61B?
S7	4484978	PROJECT???? OR EXTEND??? OR EXTENSION? OR RESTRAIN??? OR CONSTRAIN??? OR OBSTRUCT??? OR DIRECT????
S8	4815363	PLATFORM? OR SUPPORT? ? OR FOUNDATION? OR GUID??? OR BARRIER? OR BLOCK??? OR PLATE? ?
S9	1603644	ARM OR ARMS? OR WALL OR WALLS?
S10	5	S1 AND S4
S11	1	S1 AND S2 AND S3
S12	0	S11 NOT S10
S13	20	S1 AND S6
S14	17	S13 NOT S10
S15	17	IDPAT (sorted in duplicate/non-duplicate order)
S16	17	S1 AND S2:S3
S17	7	S16 NOT (S10 OR S14)
S18	7319	S2(5N)S3
S19	5078	S5 AND S18
S20	682777	S7(7N)S8:S9
S21	427	S19 AND S20
S22	2	S21 AND S4
S23	2	S22 NOT (S10 OR S14 OR S16)
S24	66	S20 AND S4
S25	21	S24 AND S6
S26	20	S25 NOT (S10 OR S14 OR S16 OR S22)
S27	3	S24 AND S3
S28	150773	S2:S3 AND S20
S29	18	S28 AND S4
S30	15	S29 NOT (S10 OR S14 OR S16 OR S22 OR S27)
S31	33	S3 AND S4
S32	29	S31 NOT (S10 OR S14 OR S16 OR S22 OR S27 OR S30)
S33	12	S32 AND S6
S34	366	S4 AND S2
S35	78	S34 AND S6
S36	38	S35 AND S5
S37	24	S36 NOT (S10 OR S14 OR S16 OR S22 OR S27 OR S30 OR S33)
S38	110	S4(10N)S2
S39	27	S38 AND S6
S40	7	S39 NOT (S10 OR S14 OR S16 OR S22 OR S27 OR S30 OR S33 OR - S37)
S41	247478	S5 (7N) S8:S9
S42	49	S41 AND S4
S43	40	S42 NOT (S10 OR S14 OR S16 OR S22 OR S27 OR S30 OR S33 OR - S37 OR S40)
S44	8	S43 AND S6
S45	3526717	COMPACT? OR CONDENS? OR COMPRESS? OR PACK?? OR PACKING OR - PRESS???
S46	732	S45 AND S4
S47	503	S45 (S) S4
S48	11	S47 AND S20
S49	6	S48 NOT (S10 OR S14 OR S16 OR S22 OR S27 OR S30 OR S33 OR - S37 OR S40)

Foreign &  
Int'l Patent  
Search

S50 429 S47 (10N) S4  
S51 54 S50 AND S6  
S52 25 S51 AND S8:S9  
S53 9 S51 AND S3  
S54 2 S53 NOT S52

? show files

File 347:JAPIO Nov 1976-2005/Feb(Updated 050606)

(c) 2005 JPO & JAPIO

File 350:Derwent WPIX 1963-2005/UD,UM &UP=200547

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10/5/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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016422539 \*\*Image available\*\*  
WPI Acc No: 2004-580454/200456  
XRPX Acc No: N04-458909

**Bone access system for e.g. vertebroplasty, has core wire and flexible conduit advanced from distal end of cannula to form curved path via cancellous bone tissue and sheath that straightens pre-formed curve**  
Patent Assignee: ARRAGON Y P (ARRA-I); MCINTYRE S H (MCIN-I); ARTHROCARE CORP (ARTH-N)

Inventor: ARRAGON Y P; MCINTYRE S H; MCINTYRE S  
Number of Countries: 108 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040162559	A1	20040819	US 2003366992	A	20030214	200456 B
WO 200473500	A2	20040902	WO 2004US4538	A	20040212	200457
US 6875219	B2	20050405	US 2003366992	A	20030214	200523

Priority Applications (No Type Date): US 2003366992 A 20030214

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20040162559	A1	17	A61B-017/58	
WO 200473500	A2	E	A61B-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 6875219 B2 A61B-017/34

Abstract (Basic): US 20040162559 A1

NOVELTY - The system has a conduit and core wire received within a cannula and the conduit, respectively, where the wire has a distal portion with a pre-formed curve. The core wire (82) and flexible conduit are advanced from a distal end of the cannula to form a curved path through a cancellous bone tissue. A sheath (92) provided between the wire and conduit to straighten the curve.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of bone access.

USE - Used for performing a hard tissue implantation procedure e.g. in connection with a high pressure injection system, **vertebroplasty**, bone augmentation procedure, and for introducing surgical or diagnostics device, fluid exhibiting a wide range of viscosity, paste and powder.

ADVANTAGE - The actuation sheath between the core wire and conduit capable of independently straightening the preformed section of the wire, thereby allowing for articulation of the curve independent of its relation to the end of the cannula. The conduit and core wire are advanced together to transverse cancellous bone to reach the desired site positioned radially from the end of the cannula, thereby easily allowing the insertion or removal activity of the curved needle into and out of the cannula occurs when the cannula is set within a patient's body.

DESCRIPTION OF DRAWING(S) - DESCRIPTION OF DRAWING - The drawing shows a perspective view of a manipulator component.

Housing (80)

Core wire (82)  
Grove (86)  
Sheath (92)  
Distal tip (96)  
pp; 17 DwgNo 5A/14

Title Terms: BONE; ACCESS; SYSTEM; CORE; WIRE; FLEXIBLE; CONDUIT; ADVANCE; DISTAL; END; CANNULA; FORM; CURVE; PATH; BONE; TISSUE; SHEATH; STRAIGHTENING; PRE; FORMING; CURVE

Derwent Class: P31

International Patent Class (Main): A61B-000/00; A61B-017/34; A61B-017/58

File Segment: EngPI

10/5/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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016261407 \*\*Image available\*\*

WPI Acc No: 2004-419301/200439

XRAM Acc No: C04-157422

XRPX Acc No: N04-332817

**Preparing vertebral body with porous cancellous bone structure by removing portion(s) of interstitial soft tissue from bone structure, and injecting the bone paste to skeleton**

Patent Assignee: REYNOLDS M A (REYN-I)

Inventor: REYNOLDS M A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040102845	A1	20040527	US 2002301451	A	20021121	200439 B

Priority Applications (No Type Date): US 2002301451 A 20021121

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20040102845	A1	25	A61F-002/44	

Abstract (Basic): US 20040102845 A1

NOVELTY - Preparing vertebral body with porous cancellous bone structure comprises removing portion(s) of the interstitial soft tissue from the cancellous bone structure to create a skeleton (SK), and injecting the bone paste into the skeleton. The cancellous bone structure has open porosity and soft tissue in it.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) structure prepared from natural vertebral body comprising skeleton portion in the porous cancellous bone structure, and bone paste interdigitated within portion(s) of the skeleton portion;

(2) kit for performing vertebroplasty comprising ablation device used to create passage (P1) in the vertebral body, and suction or impaction device to dislodge soft tissue in the body; and

(3) kit for performing lavage upon vertebral body comprising ablation device, fibrinogen to seal opening in vein or artery vessel, and bone cement applicator.

USE - For preparing vertebral body with porous cancellous bone for treating compression fracture of vertebral body.

ADVANTAGE - The invention reduces the severity of pulmonary embolisms in vertebroplasty procedures. It also allows practitioner to retain a measure of control over the cement even after the cement has entered the vertebral body, thus eliminating the danger of leakage in undesired direction. It also reduces eliminates cement loosening.

DESCRIPTION OF DRAWING(S) - The figure shows a cross section of

vertebral body prepared using the invention.

Passage (P1)  
Skeleton (SK)  
pp; 25 DwgNo 3/13

Title Terms: PREPARATION; VERTEBRA; BODY; POROUS; BONE; STRUCTURE; REMOVE; PORTION; INTERSTITIAL; SOFT; TISSUE; BONE; STRUCTURE; INJECTION; BONE; PASTE; SKELETON

Derwent Class: D22; P32

International Patent Class (Main): A61F-002/44

File Segment: CPI; EngPI

10/5/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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015380072

WPI Acc No: 2003-441013/200341

XRAM Acc No: C03-116520

XRXPX Acc No: N03-352171

**Bone precursor composition useful for inducing bone formation comprises cement mixture or solid cement and pore-forming agent**

Patent Assignee: STRYKER CORP (STYC )

Inventor: DALAL P S; KULKARNI S C; LANDERYOU T J; TOTH C A

Number of Countries: 102 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200324316	A2	20030327	WO 2002US29966	A	20020920	200341	B
AU 2002327007	A1	20030401	AU 2002327007	A	20020920	200452	
EP 1446445	A2	20040818	EP 2002761768	A	20020920	200454	
			WO 2002US29966	A	20020920		
JP 2005508217	W	20050331	WO 2002US29966	A	20020920	200523	
			JP 2003528218	A	20020920		

Priority Applications (No Type Date): US 2001960421 A 20010921

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200324316 A2 E 53 A61B-000/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW

AU 2002327007 A1 A61B-000/00 Based on patent WO 200324316

EP 1446445 A2 E C08J-009/26 Based on patent WO 200324316

Designated States (Regional): AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR

JP 2005508217 W 159 A61L-027/00 Based on patent WO 200324316

Abstract (Basic): WO 200324316 A2

NOVELTY - Bone precursor composition comprises cement mixture or solid cement and a pore-forming agent. The pore-forming agent has a particle size of 20 - 500 microM.

DETAILED DESCRIPTION - Bone precursor composition (A) comprises cement mixture or solid cement and a pore-forming agent (I). The pore-forming agent has a particle size of 20 - 500 microM, provided that when (I) is poly(lactide-co-glycolide) (PLGA), the particle size is 20 - 140 or 310 - 500 microM and when (I) is calcium sulfate, the particle size is 20 - 140 or 260 - 500 microM.

INDEPENDENT CLAIMS are included for the following:  
(1) a kit comprising (A) and a bioactive agent (1) or a binder (2);

(2) an implantable prosthetic device comprising a prosthetic implant having a surface region implantable adjacent to a target tissue, and (A) disposed on the surface region; and

(3) delivering (preferably sustained release) a bioactive agent (preferably bone morphogenic protein or a nucleic acid molecule comprising a sequence encoding a bone morphogenic protein) at a site requiring bone formation involving implanting (A) and the bioactive agent at the defect site of a mammal.

ACTIVITY - Osteopathic.

MECHANISM OF ACTION - Bone Formation Inducer.

The composition was subjected to an in vivo resorption activity test. The hardened implants containing a cement composition and either PLGA or calcium sulfate were treated with 0.2M hydrochloric acid (HCl) for 24 hours to conduct a rapid simulation of the in vivo resorption activity. 0.2N HCl (5 ml) was added to each implant in a glass vial. The acid surface covered the implant completely. The vial was subjected to moderate shaking and the appearance of the implants was observed periodically.

After 7 hours, the structural rigidity of the implants was intact. In both calcium sulfate and PLGA incorporated implants, increased porosity was observed in direct proportion to the increase in pore-forming agent. However, the calcium sulfate implants were observed to be more brittle as they held structural rigidity after 24 hours of acid treatment. A 100% cement implant did not show any visible porosity. The implants with pore forming agents showed varying degrees of porosity. The implants containing 50% pore forming agents were visibly very porous while maintaining their structure. Calcium sulfate implants developed larger and more visible pores than the PLGA implants.

USE - The composition is useful for inducing bone formation; in prosthetic devices e.g. a hip device, fusion cage and a maxillofacial device (all claimed); in ligament repair such as anterior cruciate ligament fixation or ligament attachment in the appendicular system to assist in the integration of ligament and bone; in clinical procedures for joint arthroplasty in hips, knee, elbows, and other joints where a diseased or damaged natural joint is replaced by a prosthetic joint; in clinical procedures such as **vertebroplasty**. Also useful for treating osteoporosis.

ADVANTAGE - The bone precursor composition allows significant resorption, maintains structural integrity in physiological environments, and enables manipulation of the cement in situ. The composition increases bone density. It can be applied to the intervertebral area, resulting in superior fusion and consequently achieving definitive stabilization of a traumatized motor segment via a single dorsal approach. This application eliminates the need to undergo a second operation for fractures of the thoracolumbar spine, which at present, is often necessary but involves additional high risks. Also, this method avoids the problems associated with transplantation of autogenous **cancellous bone** and its associated risk of high morbidity.

pp; 53 DwgNo 0/6

Title Terms: BONE; PRECURSOR; COMPOSITION; USEFUL; INDUCE; BONE; FORMATION; COMPRISE; CEMENT; MIXTURE; SOLID; CEMENT; PORE; FORMING; AGENT

Derwent Class: A18; A28; A96; B04; B07; D22; P31; P32; P34

International Patent Class (Main): A61B-000/00; A61L-027/00; C08J-009/26

International Patent Class (Additional): A01N-043/04; A01N-063/00;

A61F-002/00; A61F-013/00; C08J-009/28

File Segment: CPI; EngPI

10/5/4 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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014687261 \*\*Image available\*\*

WPI Acc No: 2002-507965/200254

XRAM Acc No: C02-144413

XRDX Acc No: N02-401988

**Flowable vertebral augmentation composition for injecting within repair site, comprises biocompatible, osteoconductive-support elements resistant to deformation, osteoinductive substance and biocompatible carrier**  
Patent Assignee: OSTEOTECH INC (OSTE-N); SHIMP L A (SHIM-I)

Inventor: SHIMP L A

Number of Countries: 097 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Aplicat No	Kind	Date	Week
WO 200234309	A2	20020502	WO 2001US51019	A	20011023	200254 B
AU 200231355	A	20020506	AU 200231355	A	20011023	200257
EP 1328304	A2	20030723	EP 2001988599	A	20011023	200350
			WO 2001US51019	A	20011023	
US 20040052829	A1	20040318	WO 2001US51019	A	20011023	200421
			US 2003399423	A	20031020	
EP 1328304	B1	20050209	EP 2001988599	A	20011023	200512
			WO 2001US51019	A	20011023	
DE 60108891	E	20050317	DE 108891	A	20011023	200522
			EP 2001988599	A	20011023	
			WO 2001US51019	A	20011023	

Priority Applications (No Type Date): US 2000242852 P 20001024

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 200234309	A2	E	26	A61L-027/50	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200231355	A	A61L-027/50	Based on patent WO 200234309
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EP 1328304	A2	E	A61L-027/50	Based on patent WO 200234309
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Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

US 20040052829	A1	A61F-002/00	
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EP 1328304	B1	E	A61L-027/50	Based on patent WO 200234309
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Designated States (Regional): DE ES FR GB IT TR

DE 60108891	E	A61L-027/50	Based on patent EP 1328304
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			Based on patent WO 200234309
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Abstract (Basic): WO 200234309 A2

NOVELTY - A flowable vertebral augmentation composition (9) comprises biocompatible, optionally osteoconductive-support elements, osteoinductive substance(s) and biocompatible carrier.

DETAILED DESCRIPTION - The support elements are resistant to deformation or fracture under normal physiological loads, and is incorporable into the repair site. The carrier provides flow-ability to the composition, and is clearable from repair site (10).

An INDEPENDENT CLAIM is also included for a method for treating defect site associated with a vertebral body (7) which involves introducing within the defect site a vertebral augmentation

composition.

ACTIVITY - Osteopathic. The site of decreased bone density in a vertebral body of a human subject (repair site) was located. The vertebral augmentation composition was injected into the repair site utilizing the needle of cannula, preferably percutaneous **vertebroplasty**. Within two weeks, the carrier was found to be clear from the repair site and generalized peeling of the bone was observed. Cellular activity indicative of fibrous and/or bony tissue was also observed around the support elements. The composition showed full revascularization of the repair site and formation of mature tissue cultures, in time.

MECHANISM OF ACTION - None given.

USE - For injection within vertebral body (7) repair site, for treating defect site of a vertebrate animal having increased porosity and decreased bone mineral density, such as **porous bone** e.g. osteoporotic bone.

ADVANTAGE - The composition is flowable, injectable, load-bearing, and remains at the repair site during and after the formation of tissue at the site. The composition effectively treats osteoporotic patients at risk of vertebrae fracture. The implant composition supports physiological loads at the time of implantation and remain were placed even after it is incorporated into new tissue at the implant site. The implant will be load bearing even while it is undergoing incorporation into new bony/fibrous tissue at the implant site. The fibrous tissue can form a network of tissues that are resilient to applied forces and able to sustain physiological loads. The implant incorporated into fibrous tissue, provides long term relief from the difficulties associated with **porous bone** conditions. The implant provides load-bearing capabilities at graft site before and during the formation of new bony tissue at the implantation site. The combination of osteoinductive substance and carrier provides an overall uniform vertebral augmentation composition.

DESCRIPTION OF DRAWING(S) - The figure shows a lateral view of three vertebrae of middle vertebral body, treated with vertebral augmentation composition by employing a cannula provided with expandable bag-like containment device filled over its distal end.

Cannula (5)

Distal end of cannula (6)

Vertebral body (7)

Containment device (8)

Vertebral augmentation composition (9)

Repair site (10)

pp; 26 DwgNo 1/1

Title Terms: FLOW; VERTEBRA; AUGMENT; COMPOSITION; INJECTION; REPAIR; SITE; COMPRISE; BIOCOMPATIBLE; SUPPORT; ELEMENT; RESISTANCE; DEFORM; SUBSTANCE; BIOCOMPATIBLE; CARRY

Derwent Class: A96; D22; P32; P34

International Patent Class (Main): A61F-002/00; A61L-027/50

International Patent Class (Additional): A61L-027/54

File Segment: CPI; EngPI

Red flag

10/5/5 (Item 5 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014460433 \*\*Image available\*\*

WPI Acc No: 2002-281136/200232

Related WPI Acc No: 2002-269418

XRXPX Acc No: N02-219547

Tool for creating cavities in cancellous bone, e.g. for

vertebroplasty and introducing appropriate treatment materials such as bone paste, has longitudinal body with control mechanism extending through it and tamping mechanism

Patent Assignee: SYNTHERS AG (SYNT-N); SYNTHERS USA (SYNT-N)

Inventor: BINDER L; KEPHART D; KERR S; LEHMICKE M; THONGPREDA N; WEIKEL S

Number of Countries: 096 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200219930	A2	20020314	WO 2001CH526	A	20010831	200232 B
AU 200183749	A	20020322	AU 200183749	A	20010831	200251

Priority Applications (No Type Date): US 2000229303 P 20000901

Patent Details:

Patent No	Kind	Lat	Pg	Main IPC	Filing Notes
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WO 200219930	A2	E	51	A61B-017/58	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200183749	A	A61B-017/58	Based on patent WO 200219930
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Abstract (Basic): WO 200219930 A2

NOVELTY - The tool comprises a longitudinal body or probe (10) having a distal end (12) and a physician controlled end. The longitudinal body has a controlling mechanism extending along it, and a tamping mechanism at its distal end. The tamping mechanism is expandable transversely to the longitudinal body during tamping and retractable or contractible for removal of the tamping mechanism from the bone by the controlling mechanism. In the contracted state the tamping mechanism does not protrude over the widest portion of the longitudinal body.

DETAILED DESCRIPTION - The longitudinal body has distance markings (18) on it so that the surgeon can quickly and easily determine the depth at which the tamp reaches into the bone. INDEPENDENT CLAIMS are included for: (i) a probe for introducing a passageway to the cancellous area of bone; (ii) a cannula for guiding surgical instruments; and (iii) a syringe type device having a longitudinal hollow body with a distal end and a physician controlled end and a plunger axially displaceable within the hollow body, with the distal end adapted to fit a tube that is extendable through the cannula.

USE - For creating cavities in cancellous bone, e.g. for vertebroplasty and introducing appropriate treatment materials such as bone paste, cement, medication, autograft or allograft. Can be used to treat bone that due to osteoporosis, avascular, necrosis, cancer or trauma is fractured or prone to compression fracture or collapse.

ADVANTAGE - Tools work together well.

DESCRIPTION OF DRAWING(S) - The drawing shows two views 90 degrees apart in perspective, of a probe body and a view of the probe tip from a forward perspective.

probe sleeve (10)

probe tip (12)

gently sloping surface (13)

gentle surface (16)

distance scale (18)

hole (20)

pp; 51 DwgNo 1/30

Title Terms: TOOL; CAVITY; BONE; INTRODUCING; APPROPRIATE; TREAT; MATERIAL; BONE; PASTE; LONGITUDE; BODY; CONTROL; MECHANISM; EXTEND; THROUGH; TAMP; MECHANISM

Derwent Class: P31  
International Patent Class (Main): A61B-017/58  
International Patent Class (Additional): A61B-017/32  
File Segment: EngPI  
?

15/5/4 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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016551006  
WPI Acc No: 2004-709747/200469  
XRAM Acc No: C04-250254  
XRXPX Acc No: N04-562889

**Bone replacement material having interconnected pore structure useful for reinforcing or replacing bone in vertebroplasty and kyphoplasty applications comprises viscous component and biodegradable inclusions containing polymers**

Patent Assignee: UNIV RICE WILLIAM MARSH (UYRI-N)

Inventor: LIEBSCHNER M; SCHUERMAN P L

Number of Countries: 108 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200482524	A2	20040930	WO 2004US7600	A	20040312	200469 B

Priority Applications (No Type Date): US 2003454485 P 20030313

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 200482524	A2	E	18 A61F-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Abstract (Basic): WO 200482524 A2

NOVELTY - A material having an interconnected pore structure comprising a viscous component (A) and several biodegradable inclusions (B) containing polymers, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- (1) creating bone replacement material, comprising combining (A) and (B); and
- (2) replacing or reinforcing bone in vivo, comprising:
  - (a) combining (A) and (B) to form composite material; and
  - (b) applying the composite material in vivo to replace or reinforce bone.

ACTIVITY - Osteopathic.

No biological data is given.

MECHANISM OF ACTION - None given.

USE - As bone replacement material for reinforcing or replacing bone in **vertebroplasty** and **kyphoplasty** applications (claimed); in orthopedic, cranio-maxillofacial and dental fields; in repairing fractured bone, strengthening cancerous bone, reinforcing osteoporotic bone and accelerated dental implant anchorage; in fracture repair and prophylactic treatment; for drug delivery in soft tissue therapy e.g. in cancer treatment, cartilage repair and engineering applications.

ADVANTAGE - The bone replacement material has a compressive strength of at least 20 MPa and porosity of 30-80 %. The material facilitates the regeneration and growth of bone; is biodegradable; and has improved biocompatibility with natural bone, high permeability and low porosity. The material improves vascularization and growth of new tissue in an interconnected porous network. The material can be rendered porous for tissue growth and hence can effectively be used for

replacement of load bearing bones.

pp; 18 DwgNo 0/3

Title Terms: BONE; REPLACE; MATERIAL; INTERCONNECT; PORE; STRUCTURE; USEFUL;  
; REINFORCED; REPLACE; BONE; APPLY; COMPRISE; VISCOSITY; COMPONENT;  
BIODEGRADABLE; INCLUSION; CONTAIN; POLYMER

Derwent Class: A28; A32; A96; B07; D22; P32

International Patent Class (Main): A61F-000/00

File Segment: CPI; EngPI

15/5/5 (Item 5 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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016550299 \*\*Image available\*\*

WPI Acc No: 2004-709040/200469

Related WPI Acc No: 2003-635009; 2004-052131; 2004-314951

XRAM Acc No: C04-250026

Apparatus useful for manually mixing and dispensing component e.g. in preparing bone cement comprises a sealed mixing chamber, a mixing unit, drive mechanism, a dispensing chamber and a controllable portal

Patent Assignee: BARKER D (BARK-I); BIANCHI D (BIAN-I); BOGERT R B (BOGE-I); CARR J P (CARR-I); GLEASON K R (GLEA-I); NELSON J W (NELS-I); TREBING L M (TREB-I); ADVANCED BIOMATERIAL SYSTEMS INC (ADBI-N)

Inventor: BARKER D; BIANCHI D; BOGERT R B; CARR J P; GLEASON K R; NELSON J W; TREBING L M

Number of Countries: 108 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040196735	A1	20041007	US 2002266053	A	20021007	200469 B
			US 2002424398	P	20021106	
			US 2003417553	A	20030417	
			US 2003438471	A	20030515	
			US 2003637908	A	20030808	
WO 200516502	A1	20050224	WO 2004US1386	A	20040120	200515

Priority Applications (No Type Date): US 2002424398 P 20021106; US 2002266053 A 20021007; US 2003417553 A 20030417; US 2003438471 A 20030515 ; US 2003637908 A 20030808

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20040196735	A1	26	B01F-013/06	CIP of application US 2002266053 Provisional application US 2002424398 CIP of application US 2003417553 CIP of application US 2003438471 CIP of patent US 6572256

WO 200516502 A1 E B01F-013/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Abstract (Basic): US 20040196735 A1

NOVELTY - An apparatus comprises a sealed mixing chamber (295) having an access portal and a vacuum portal, a mixing unit, a first manually actuatable drive mechanism, a dispensing chamber (305), a controllable portal for opening a flow path between the sealed mixing

chamber and the mixing chamber after the components are mixed; and a second manually actuatable drive mechanism.

USE - For manually mixing and dispensing components (claimed); for preparing bone cement and deliver the bone cement into skeletal structure of patients such as to injured spinal vertebrae; for preparation and delivery of biocompatible bone fillers into patients (both humans and animals), e.g. **vertebroplasty**, tumor or bone-void filling and dental applications.

ADVANTAGE - Provides much greater control than reported previously; provides manual mixing and dispensing with finer level of control provided by direct hand control; is not dependent on the presence of power tools or electrical outlets and provides consistent mixing and limits the exposure of noxious fumes generated during mixing process.

DESCRIPTION OF DRAWING(S) - The figure shows mixing and dispensing unit of the apparatus in the mixing stage.

mixing chamber (295)  
controllable portal assembly (300)  
dispensing chamber (305)  
dispensing portal (310)  
drop shaft (340)  
sliding tube. (470)  
pp; 26 DwgNo 15/20

Title Terms: APPARATUS; USEFUL; MANUAL; MIX; DISPENSE; COMPONENT; PREPARATION; BONE; CEMENT; COMPRISE; SEAL; MIX; CHAMBER; MIX; UNIT; DRIVE ; MECHANISM; DISPENSE; CHAMBER; CONTROL; PORTAL

Derwent Class: B07; J02; P32

International Patent Class (Main): B01F-013/00; B01F-013/06

International Patent Class (Additional): **A61F-002/46** ; B01F-015/00; B01F-015/02

File Segment: CPI; EngPI

15/5/6 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX  
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016510589 \*\*Image available\*\*

WPI Acc No: 2004-668870/200465

XRPX Acc No: N04-529887

**Hydraulic device in percutaneous vertebroplasty includes intermediate flexible tube connecting standard syringes, provided with plunger which slides longitudinally with respect to axis of cylinder**

Patent Assignee: FERREYRO IRIGOYEN R H (IRIG-I); MARQUEZ MIRANDA M (MIRA-I)

Inventor: FERREYRO IRIGOYEN R H; MARQUEZ MIRANDA M

Number of Countries: 100 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200480357	A1	20040923	WO 2003MX27	A	20030314	200465 B
AU 2003214708	A1	20040930	AU 2003214708	A	20030314	200504
			WO 2003MX27	A	20030314	

Priority Applications (No Type Date): WO 2003MX27 A 20030314

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 200480357	A1	S 42	A61F-002/46	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB

GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ  
UG ZM ZW  
AU 2003214708 A1            A61F-002/46    Based on patent WO 200480357

Abstract (Basic): WO 200480357 A1

NOVELTY - An intermediate flexible tube connects the standard syringes. A syringe is inverted with respect to another syringe. The intermediate tube includes a plunger which slides longitudinally with respect to an axis of a cylinder and controlled by a syringe. The syringe comprises a bone cement to be injected to bone for filling porosity, through a needle.

USE - For injection of bone cement in percutaneous **vertebroplasty**

ADVANTAGE - Enables to increase the pressure exerted on a syringe significantly and to inject polymethylmethacrylate reliably.

DESCRIPTION OF DRAWING(S) - The figure shows a front view of the hydraulic device.

pp; 42 DwgNo 1/9

Title Terms: HYDRAULIC; DEVICE; PERCUTANEOUS; INTERMEDIATE; FLEXIBLE; TUBE; CONNECT; STANDARD; SYRINGE; PLUNGE; SLIDE; LONGITUDE; RESPECT; AXIS; CYLINDER

Derwent Class: P32

International Patent Class (Main): **A61F-002/46**

File Segment: EngPI

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17/5/1 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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016991486 \*\*Image available\*\*

WPI Acc No: 2005-315803/200532

Related WPI Acc No: 2005-366499

XRPX Acc No: N05-258131

**Access assembly for guiding instrumentation through soft tissue to point on spine, has guide pin slidably positionable within elongate tubular guide pin introducer**

Patent Assignee: AINSWORTH S D (AINS-I); ASSELL R L (ASSE-I); CRAGG A L (CRAG-I); DICKHUDT E A (DICK-I); CRAGG A H (CRAG-I); TRANS1 INC (TRAN-N)

Inventor: AINSWORTH S D; ASSELL R L; CRAGG A L; DICKHUDT E A; CRAGG A H

Number of Countries: 108 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200539651	A2	20050506	WO 2004US35269	A	20041022	200532 B
US 20050137601	A1	20050623	US 2003513899	P	20031023	200542
			US 2004971731	A	20041022	
US 20050137602	A1	20050623	US 2003513899	P	20031023	200542
			US 2004971765	A	20041022	
US 20050137604	A1	20050623	US 2003513899	P	20031023	200542
			US 2004971775	A	20041022	
US 20050137605	A1	20050623	US 2003513899	P	20031023	200542
			US 2004971781	A	20041022	
US 20050137607	A1	20050623	US 2003513899	P	20031023	200542
			US 2004972299	A	20041022	
US 20050137612	A1	20050623	US 2003513899	P	20031023	200542
			US 2004971779	A	20041022	
US 20050149049	A1	20050707	US 2003513899	P	20031023	200547
			US 2004972065	A	20041022	
US 20050149034	A1	20050707	US 2003513899	P	20031023	200547
			US 2004972077	A	20041022	

Priority Applications (No Type Date): US 2003513899 P 20031023; US 2004971731 A 20041022; US 2004971765 A 20041022; US 2004971775 A 20041022; US 2004971781 A 20041022; US 2004972299 A 20041022; US 2004971779 A 20041022; US 2004972077 A 20041022; US 2004972065 A 20041022

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200539651 A2 E 136 A61L-000/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 20050137601 A1 A61B-017/16 Provisional application US 2003513899

US 20050137602 A1 A61B-017/58 Provisional application US 2003513899

US 20050137604 A1 A61B-017/58 Provisional application US 2003513899

US 20050137605 A1 A61B-017/58 Provisional application US 2003513899

US 20050137607 A1 A61B-017/58 Provisional application US 2003513899

US 20050137612 A1 A61B-017/58 Provisional application US 2003513899

US 20050149049 A1 A61B-017/56 Provisional application US 2003513899

US 20050149034 A1 A61B-017/56 Provisional application US 2003513899

Abstract (Basic): WO 200539651 A2

NOVELTY - A blunt tipped stylet is slidably positionable within a guide. A guide pin is slidably positionable within an elongate tubular guide pin introducer. The guide pin introducer has an introducer tube that extends between distal and proximal ends and defines an inner tubular member lumen and an introducer handle.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (A) a guide pin introducer;
- (B) a guide pin;
- (C) a spinal nucleus tissue extraction tool;
- (D) a cutter;
- (E) a tissue removal tool;
- (F) a spinal tissue extraction tool;
- (G) a distraction device;
- (H) a temporary distraction device;
- (I) an exchange system;
- (J) an inserter;
- (K) a bone **dilator** system;
- (L) a bone **dilator** kit;
- (M) an access kit;
- (N) a disc preparation kit;
- (O) a spinal fusion kit; and
- (P) a mobility kit.

USE - For guiding instrumentation through soft tissue to point on spine for therapeutic procedure e.g. spinal arthroplasty, partial or total disc replacement, annulus repair, **vertebroplasty**, arthrodesis, nucleectomy.

ADVANTAGE - Enables axial placement of implants close to and in alignment with the human spine's physiological center of rotation. Ensures minimal blood loss and enables preservation of soft tissue structures e.g. veins, arteries, nerves. Ensures less surgical and anesthesia required compared with conventional procedures.

DESCRIPTION OF DRAWING(S) - The figure shows the explanatory drawing of a cutter extending through a **dilator** sheath.

**Dilator** sheath (220)  
TASII axial bore (370)  
Anterior tract (372)  
Cutter assembly shaft (410)  
Cutter blade (453)  
pp; 136 DwgNo 15/35

Title Terms: ACCESS; ASSEMBLE; GUIDE; INSTRUMENT; THROUGH; SOFT; TISSUE; POINT; SPINE; GUIDE; PIN; SLIDE; POSITION; ELONGATE; TUBE; GUIDE; PIN; INTRODUCING

Derwent Class: P31; P34

International Patent Class (Main): A61B-017/16; A61B-017/56; A61B-017/58; A61L-000/00

File Segment: EngPI

?

30/5/5 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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014551628 \*\*Image available\*\*

WPI Acc No: 2002-372331/200240

XRPX Acc No: N02-290965

**Reducing fractured bone using fracture reduction cannula having internal axial bore and circumferential opening**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: LAYNE R W; RALPH C R; REILEY M A; SAND P M; SCRIBNER R M

Number of Countries: 096 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applcat No	Kind	Date	Week
WO 200234148	A2	20020502	WO 2001US45589	A	20011025	200240 B
US 20020099385	A1	20020725	US 2000243194	P	20001025	200254
			US 20011937	A	20011025	
AU 200225837	A	20020506	AU 200225837	A	20011025	200257
EP 1328203	A2	20030723	EP 2001988557	A	20011025	200350
			WO 2001US45589	A	20011025	
KR 2003068144	A	20030819	KR 2003705821	A	20030425	200382
JP 2004512087	W	20040422	WO 2001US45589	A	20011025	200428
			JP 2002537204	A	20011025	

Priority Applications (No Type Date): US 2000243194 P 20001025; US 20011937 A 20011025

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200234148 A2 E 49 A61B-017/58

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

US 20020099385 A1 A61B-017/58 Provisional application US 2000243194

AU 200225837 A A61B-017/58 Based on patent WO 200234148

EP 1328203 A2 E A61B-017/58 Based on patent WO 200234148

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2003068144 A A61B-017/58

JP 2004512087 W 72 A61B-017/58 Based on patent WO 200234148

Abstract (Basic): WO 200234148 A2

NOVELTY - The tool comprises a cannula with an internal axial bore with a circumferential opening in the side wall extending partially about the side wall and is elongated along the axis. The bore is solid between the distal terminus of the circumferential opening and the distal end of the cannula. An expandable structure is inserted through the bone into the cannula and expands through the circumferential opening into contact with cancellous bone forming a cavity. The cavity is filled with a bone filling material that is allowed to set.

USE - For treatment and correction of human or other animal bone conditions and is practically well suited for fractures of long bones such as the human distal radius.

ADVANTAGE - The bone is capable of bearing limited loads and the healing of the fractured bone is promoted while minimizing degradation of the adjacent joints.

DESCRIPTION OF DRAWING(S) - The drawing shows a section of the

distal radius showing cancellous bone and cortical bone in a fractured condition.

pp; 49 DwgNo 3/28

Title Terms: REDUCE; FRACTURE; BONE; FRACTURE; REDUCE; CANNULA; INTERNAL; AXIS; BORE; CIRCUMFERENCE; OPEN

Derwent Class: P31; P32

International Patent Class (Main): A61B-017/58

International Patent Class (Additional): A61B-017/16; A61B-017/72; A61F-002/42; A61F-002/44; A61F-002/46

File Segment: EngPI

30/5/13 (Item 12 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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008141907 \*\*Image available\*\*

WPI Acc No: 1990-028908/199004

XRPX Acc No: N90-022100

Dental ridge defect restoration - by making hollow by inserting pin into bone, while compacting hollow walls

Patent Assignee: KIEV MED INST (KIMI )

Inventor: KHODOROVIC P V; NESPRYADKO V P; SEDAKOV I N

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Aplicat No	Kind	Date	Week
SU 1491503	A	19890707	SU 4177283	A	19870104	199004 B

Priority Applications (No Type Date): SU 4177283 A 19870104

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1491503	A	2		

Abstract (Basic): SU 1491503 A

According to the proposed method, the hollow is made by inserting pin (1) into the bone, while compacting its walls. The alveolar process is prep'd. by making an opening in the mucosa. A canal is then made in the jaw bone. The walls of the canal are expanded by compacting the spongy bone. Expanding pin (1), 15-20 mm long of the shape resembling the canal, is inserted into the canal. Pin (1) is then extracted. Intraosseous implant is inserted directly after extracting pin (1). The walls of the bone canal are compacted with bone punches, 2,2.5 and 3 mm in dia. The intraosseous implant is wedged in the canal. ADVANTAGE - Reduces post-operative complications and shortens the time of rehabilitation. Bul. 25/7.7.89 (2pp Dwg.No.2/3)

Title Terms: DENTAL; RIDGE; DEFECT; RESTORATION; HOLLOW; INSERT; PIN; BONE; COMPACT; HOLLOW; WALL

Derwent Class: P32

International Patent Class (Additional): A61C-013/30

File Segment: EngPI

?

30/5/2 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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016748601  
WPI Acc No: 2005-072879/200508  
XRAM Acc No: C05-024894  
XRXPX Acc No: N05-062812

**Implant useful for fusing adjacent bony structures comprises a structural member combined with a flexible planar member for retaining the structural member**

Patent Assignee: BINDSEIL J J (BIND-I); MCKAY W F (MCKA-I); RAY E F (RAYE-I); REEVES C R (REEV-I); SIMONTON T A (SIMO-I); SDGI HOLDINGS INC (SDGI-N)

Inventor: BINDSEIL J J; MCKAY W F; RAY E F; REEVES C R; SIMONTON T A; BIDSEIL J J

Number of Countries: 108 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040249471	A1	20041209	US 2003455760	A	20030605	200508 B
WO 2004108023	A1	20041216	WO 2004US17913	A	20040604	200508

Priority Applications (No Type Date): US 2003455760 A 20030605

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20040249471	A1	11	A61F-002/28	
WO 2004108023	A1	E	A61F-002/44	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Abstract (Basic): US 20040249471 A1

NOVELTY - An implant comprising at least one structural member (a) combined with at least one flexible planar member (b) for retaining (a) to form the implant, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) treating a body to promote fusion of adjacent bony structures involving: providing several bone pieces; contacting the bone pieces in (b) to form implant having predetermined form; and placing the implant between adjacent bony structures; and

(2) a system comprising several bone pieces, at least one (b) retaining the bone pieces, and a fixation device attachable to the adjacent bony structures and having a structure to limit relative motion between the adjacent bony structures.

USE - The implant is useful as a load bearing implant useful for fusing adjacent bony structures, and for promoting fusion of adjacent bony structures (claimed).

ADVANTAGE - The implant facilitates fusion of bony structures by maintaining the adjacent bony structures in a predetermined spaced relationship while bone grows between them. The implant has improved compressive strength or load bearing capacity greater than typical cancellous bone and up to that of typical cortical bone.

pp; 11 DwgNo 0/9

Title Terms: IMPLANT; USEFUL; FUSE; ADJACENT; BONE; STRUCTURE; COMPRISE; STRUCTURE; MEMBER; COMBINATION; FLEXIBLE; PLANE; MEMBER; RETAIN;

STRUCTURE; MEMBER  
Derwent Class: A96; B04; D22; P32  
International Patent Class (Main): A61F-002/28; A61F-002/44  
File Segment: CPI; EngPI  
?

33/5/2 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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016494823 \*\*Image available\*\*

WPI Acc No: 2004-652769/200463

XRAM Acc No: C04-233510

XRPX Acc No: N04-516553

**Orthopedic device for implanting between adjacent vertebrae, comprises arcuate balloon, and hardenable material within balloon**

Patent Assignee: DEPUY SPINE INC (DEPU-N)

Inventor: AQUINO L; BARTISH C M; COOPER K; DIMAURO T M; KADIYALA S; KELLY J E; MALONE J D; MOORE B T; ROHR W L; SERHAN H; SLIVKA M A; WOODROW H B

Number of Countries: 108 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200473563	A2	20040902	WO 2004US4284	A	20040213	200463 B
US 20040230309	A1	20041118	US 2003448221	P	20030214	200477
					US 2004778684	A 20040213

Priority Applications (No Type Date): US 2003448221 P 20030214; US 2004778684 A 20040213

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200473563 A2 E 166 A61F-002/44

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 20040230309 A1 A61F-002/44 Provisional application US 2003448221

Abstract (Basic): WO 200473563 A2

NOVELTY - An orthopedic device for implanting between adjacent vertebrae (10), comprises an arcuate **balloon**, and a hardenable material within the **balloon**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a method of implanting an intervertebral spinal fusion device, comprising performing a disectomy while preserving an outer annular shell; inserting an inflatable device (12) that includes a deflated arcuate **balloon** into an intervertebral space; and directing a hardenable material into the deflated arcuate **balloon** in an amount sufficient to inflate the **balloon** and distract the disc space; and

(2) a kit for providing interbody fusion across an intervertebral disc space, comprising a cannula (18) defining an inner diameter; hardenable material capable of supporting intervertebral load; flowable osteobiologic composition; and arcuate **balloon**.

USE - For implanting between adjacent vertebrae.

ADVANTAGE - The orthopedic device makes possible minimally invasive surgical procedures to restore a natural angle and increase disc height between two adjacent vertebrae. The same device used to create distraction/lordosis can function as the intervertebral implant needed to maintain height and natural angle. The orthopedic device makes possible a minimally invasive procedure to create in situ a structural scaffold filled with osteoinductive materials.

DESCRIPTION OF DRAWING(S) - The figure is a perspective view of the deployment of an inflatable device into the disc space through the

cannula.

Endplate (8)  
Vertebrae (10)  
Inflatable device (12)  
Cannula (18)  
pp; 166 DwgNo 4A/17

Title Terms: ORTHOPAEDIC; DEVICE; IMPLANT; ADJACENT; VERTEBRA; COMPRISE;  
ARCUATE; **BALLOON**; HARDEN; MATERIAL; **BALLOON**

Derwent Class: A96; B05; C07; D16; D22; L02; P32; P34

International Patent Class (Main): **A61F-002/44**

International Patent Class (Additional): **A61F-002/46**; A61L-027/02;  
A61L-027/12; A61L-027/14; A61L-027/18; A61L-027/54

File Segment: CPI; EngPI

*# Red flag*

33/5/3 (Item 2 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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016292279 \*\*Image available\*\*

WPI Acc No: 2004-450174/200442

Related WPI Acc No: 2004-441058

XRPX Acc No: N04-356302

**Intravertebral space stabilizing method for treating spinal deformity,  
involves enlarging distal portion of delivery instrument to expand  
collapsed expandable device in situ for implantation at operative site**

Patent Assignee: SDGI HOLDINGS INC (SDGI-N)

Inventor: TRIEU H H

Number of Countries: 107 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200447689	A1	20040610	WO 2003US36951	A	20031119	200442 B
AU 2003298670	A1	20040618	AU 2003298670	A	20031119	200471

Priority Applications (No Type Date): US 2002428081 P 20021121

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200447689 A1 E 46 A61F-002/30

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ  
CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID  
IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ  
NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA  
UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR  
GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR  
TZ UG ZM ZW

AU 2003298670 A1 A61F-002/30 Based on patent WO 200447689

Abstract (Basic): WO 200447689 A1

NOVELTY - The method involves accessing a vertebral body and forming an access passage into the body. Expandable devices (30) are collapsed on a distal portion of a delivery instrument (50) for delivery to an operative site. A **balloon** catheter-type instrument with an enlargeable unit enlarges the distal portion to expand the expandable device in situ for implantation at the operative site.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a system for intravertebral reduction including a delivery instrument and an expandable unit.

USE - Used for stabilizing intravertebral discs for treating spinal deformity and injury.

**ADVANTAGE** - The **balloon** catheter-type instrument with an enlargeable unit expands the collapsed distal portion of the delivery instrument for implantation at an operative site, thereby effectively compressing the **cancellous bone**, thus providing size and shape restoration to bony structures and providing immediate and long-term support of the reduced vertebra. The expandable devices maintain the desired vertebral height after removal of expandable units without applying internal pressure or support to the body, thus restoring the vertebral space. The expandable device enables placement of bone filler material under low pressures and high viscosity, thus reducing the time for curing and stabilization.

**DESCRIPTION OF DRAWING(S)** - The drawing shows a sectional view of a collapsed expandable device and delivery instrument.

Expandable device (30)  
Engagement units (38,48)  
Delivery instrument (50)  
Shaft (52)  
Expandable unit (55)

pp; 46 DwgNo 1/41

**Title Terms:** SPACE; STABILISED; METHOD; TREAT; SPINE; DEFORM; ENLARGE; DISTAL; PORTION; DELIVER; INSTRUMENT; EXPAND; COLLAPSE; EXPAND; DEVICE; SITU; IMPLANT; OPERATE; SITE

**Derwent Class:** P32

**International Patent Class (Main):** A61F-002/30

**International Patent Class (Additional):** A61F-002/44 ; A61F-002/46

**File Segment:** EngPI

**33/5/4 (Item 3 from file: 350)**

DIALOG(R) File 350:Derwent WPIX

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016069266 \*\*Image available\*\*

WPI Acc No: 2004-227123/200421

XRPX Acc No: N04-179482

**Mechanical bone tamping device for cavitation of soft cancellous bone has pressure arms and mechanical spreading mechanism which are passed through cannula into hole in bone such that arms are not spread apart by spreading mechanism**

**Patent Assignee:** SUDDABY L (SUDD-I)

**Inventor:** SUDDABY L

**Number of Countries:** 105 **Number of Patents:** 004

**Patent Family:**

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200419756	A2	20040311	WO 2003US25842	A	20030829	200421 B
US 20040087994	A1	20040506	US 2002230256	A	20020829	200430
AU 2003263898	A1	20040319	AU 2003263898	A	20030829	200462
US 20050124989	A1	20050609	US 2002230256	A	20020829	200538
			US 2004990443	A	20041118	

**Priority Applications (No Type Date):** US 2002230256 A 20020829; US 2004990443 A 20041118

**Patent Details:**

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200419756	A2	E	16	A61B-000/00	

**Designated States (National):** AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW  
US 20040087994 A1 A61B-017/00  
AU 2003263898 A1 A61B-000/00 Based on patent WO 200419756  
US 20050124989 A1 A61F-005/04 Cont of application US 2002230256

Abstract (Basic): WO 200419756 A2

NOVELTY - The mechanical bone **tamping** device includes a mechanical spreading mechanism connected to at least two elongated pressure arms (16) for spreading each of the arms. The mechanical spreading mechanism and the pressure arms are passed through a cannula into a hole formed in a bone, such that the arms are not spread apart.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (a) a cavity formation method in soft **cancellous bone** ; and
- (b) a stabilizing method for bone weakened by osteoporosis.

USE - For cavitation of soft **cancellous bone** . Applicable for repair of osteoporotic bone fracture.

ADVANTAGE - Enables mechanical formation of cavity within vertebral body to allow installation of bone cement in a viscous configuration with reduced risk of misplacing bone cement or embolization of bone cement through trabecular channels. Inaccurate and uncontrollable cavity formation caused by a **balloon** insufflation can be prevented without requiring passive placement of liquid bone cement through injection under pressure.

DESCRIPTION OF DRAWING(S) - The figure shows the mechanical bone **tamping** device.

- Shaft (10)
- Radially expandable structure (14)
- Pressure arms (16)
- Links (18)
- Distal collar (20)
- Proximal collar (22)

pp; 16 DwgNo 1/20

Title Terms: MECHANICAL; BONE; **TAMP** ; DEVICE; CAVITATE; SOFT; BONE; PRESSURE; ARM; MECHANICAL; SPREAD; MECHANISM; PASS; THROUGH; CANNULA; HOLE; BONE; ARM; SPREAD; APART; SPREAD; MECHANISM

Derwent Class: P31; P32

International Patent Class (Main): A61B-000/00; A61B-017/00; **A61F-005/04**

International Patent Class (Additional): A61B-017/60; **A61F-002/00**

File Segment: EngPI

33/5/5 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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015356697 \*\*Image available\*\*  
WPI Acc No: 2003-417635/200339  
Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-059975; 1999-371276; 2000-086828; 2003-209147; 2003-697288; 2003-776174; 2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775; 2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443  
XRXPX Acc No: N03-333037

Inflatable device for bone, has internal restraints to direct expansion of expandable case  
Patent Assignee: KYPHON INC (KYPH-N)  
Inventor: ICO C; REILEY M A; REISS P; SCHOLTEN A; TALMADGE K D  
Number of Countries: 101 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030032963	A1	20030213	US 9854736	A	19980403	200339 B
			US 200244843	A	20020111	
WO 200359214	A2	20030724	WO 2002US36320	A	20021023	200349
AU 2002359386	A1	20030730	AU 2002359386	A	20021023	200421
EP 1463464	A2	20041006	EP 2002793920	A	20021023	200465
			WO 2002US36320	A	20021023	
KR 2004105702	A	20041216	KR 2004710850	A	20040712	200525
JP 2005514160	W	20050519	WO 2002US36320	A	20021023	200538
			JP 2003559380	A	20021023	

Priority Applications (No Type Date): US 200244843 A 20020111; US 9854736 A 19980403

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030032963	A1		35	A61B-017/56	CIP of application US 9854736
					CIP of patent US 6240326

WO 200359214 A2 E A61F-002/46

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW

AU 2002359386 A1 A61F-002/46 Based on patent WO 200359214

EP 1463464 A2 E A61F-002/44 Based on patent WO 200359214

Designated States (Regional): AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR

KR 2004105702 A A61F-002/44

JP 2005514160 W 41 A61B-017/56 Based on patent WO 200359214

Abstract (Basic): US 20030032963 A1

NOVELTY - Internal restraint is coupled to the expandable case, which directs the expansion of the case.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for bone treatment method.

USE - For treatment of **cancellous bone** in human, animals.

ADVANTAGE - Applies reliable force for moving fractured cortical bone, thereby operability is improved.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of the **balloon**-type inflatable device.

pp; 35 DwgNo 1/28

Title Terms: INFLATE; DEVICE; BONE; INTERNAL; RESTRAIN; DIRECT; EXPAND; EXPAND; CASE

Derwent Class: P31; P32

International Patent Class (Main): A61B-017/56; A61F-002/44 ; A61F-002/46

File Segment: EngPI

33/5/6 (Item 5 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014745147 \*\*Image available\*\*

WPI Acc No: 2002-565854/200260

Related WPI Acc No: 2004-315461

XRAM Acc No: C02-160289

XRPX Acc No: N02-447938

**Treatment of bone abnormality, e.g. vascular necrosis of femoral head or tibial plateau fractures, involves forming cavity in the bone, and inserting expandable, empty fabric bag into the cavity**

Patent Assignee: SPINEOLOGY GROUP LLC (SPIN-N); AHERN J W (AHER-I); GROBLER L J (GROB-I); KUSLICH S D (KUSL-I); WOLFE S J (WOLF-I); SPINEOLOGY INC (SPIN-N)

Inventor: AHERN J W; GROBLER L J; KUSLICH S D; WOLFE S J

Number of Countries: 026 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applcat No	Kind	Date	Week
US 20020068974	A1	20020606	US 2000219853	P	20000721	200260 B
			US 2001909667	A	20010720	
WO 200307853	A1	20030130	WO 2001US22838	A	20010720	200319 N
EP 1408888	A1	20040421	EP 2001955877	A	20010720	200427 N
			WO 2001US22838	A	20010720	
AU 2001277928	A1	20030303	AU 2001277928	A	20010720	200452 N
			WO 2001US22838	A	20010720	
KR 2004051581	A	20040618	WO 2001US22838	A	20010720	200468 N
			KR 2004701030	A	20040120	
JP 2004534612	W	20041118	WO 2001US22838	A	20010720	200476 N
			JP 2003513462	A	20010720	

Priority Applications (No Type Date): US 2000219853 P 20000721; US 2001909667 A 20010720; WO 2001US22838 A 20010720; EP 2001955877 A 20010720; AU 2001277928 A 20010720; KR 2004701030 A 20040120; JP 2003513462 A 20010720

Patent Details:

Patent No	Kind	Land Pg	Main IPC	Filing Notes
US 20020068974	A1	19	A61F-002/44	Provisional application US 2000219853

WO 200307853 A1 E A61F-002/44

Designated States (National): AU CA HU JP KR US

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

EP 1408888 A1 E A61F-002/44 Based on patent WO 200307853

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

AU 2001277928 A1 A61F-002/44 Based on patent WO 200307853

KR 2004051581 A A61F-002/44

JP 2004534612 W 42 A61B-017/56 Based on patent WO 200307853

Abstract (Basic): US 20020068974 A1

NOVELTY - A bone abnormality is treated by forming a cavity in bone with abnormality, inserting an expandable, empty fabric bag into the cavity, and packing the bag through a fill opening with material that will support and promote bone growth through the fabric wall. The packing causes the bag to expand until bag and material form a self-restraining rigid shape.

DETAILED DESCRIPTION - Treatment of bone abnormality comprises exposing an area of bone having an abnormality, forming a cavity (16) in the bone, inserting an expandable, and empty fabric bag (22) into the cavity through an opening. The bag is formed of fabric wall including bag openings having diameter of 0.25-5 mm, and is defining an interior and has an exterior. The bag is packed through a fill opening with material (19) that will support and promote bone growth through the fabric wall. The packing causes the bag to expand until the bag and material form a self-restraining rigid shape. The exterior of the bag is in contact with the bone of the cavity. The bag openings are constructed and arranged to prevent the material from passing toward the exterior of the bag. The fill opening is closed to prevent loss of the material from the bag interior (21). An INDEPENDENT CLAIM is also

included for a device for compacting cancellous bone comprising inner and outer layers. The inner layer defines an elastomeric body. The outer layer defines a flexible material and includes pores. The inner and outer layers define an expandable body to assume a collapsed geometry for deployment into bones and an expanded geometry for compacting cancellous bone to form a cavity. The inner and outer layer define opening(s).

USE - For treating bone abnormalities e.g., bone tumors, cysts, vascular necrosis of femoral head, tibial plateau fractures, and/or compression fractures of the spine. (All claimed).

ADVANTAGE - The inventive method utilizes a bag that is made of fabric, which is light, biocompatible, flexible and easily handled and has very good tensile strength. The fabric bag is expandable and unlikely to rip and tear during insertion and inflation. It prevents the breakage of the balloon and greatly limits the ability of fill material from leaking out the cavity through bone fissures where it could cause damage.

DESCRIPTION OF DRAWING(S) - The drawing shows a top elevational view of a vertebra showing a second of two expandable fabric bags being positioned.

Cavity (16)  
Material (19)  
Bag interior (21)  
Fabric bag (22)  
pp; 19 DwgNo 5/21

Title Terms: TREAT; BONE; ABNORMAL; VASCULAR; NECROSIS; FEMORAL; HEAD; TIBIA; PLATEAU; FRACTURE; FORMING; CAVITY; BONE; INSERT; EXPAND; EMPTY; FABRIC; BAG; CAVITY

Derwent Class: A96; P31; P32

International Patent Class (Main): A61B-017/56; A61F-002/44

International Patent Class (Additional): A61F-002/46

File Segment: CPI; EngPI

33/5/7 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014205179 \*\*Image available\*\*

WPI Acc No: 2002-025876/200203

Related WPI Acc No: 2000-237393; 2002-098189; 2002-269424

XRAM Acc No: C02-007207

XRPX Acc No: N02-020011

Treatment and prevention of vertebral compression fracture involves inserting cavity-forming device into cancellous bone, creating cavity and barrier region of compressed cancellous bone, and filling the cavity with filler

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BASISTA J J; BOUCHER R P; FOLLMER M; LAYNE R W; OSORIO R A; TALMADGE K D

Number of Countries: 095 Number of Patents: 012

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200176514	A2	20011018	WO 2001US11456	A	20010405	200203 B
AU 200153267	A	20011023	AU 200153267	A	20010405	200213
US 20020161373	A1	20021031	US 2000194685	P	20000405	200274
			US 2001827260	A	20010405	
EP 1272131	A2	20030108	EP 2001926753	A	20010405	200311
			WO 2001US11456	A	20010405	
KR 2002091179	A	20021205	KR 2002713399	A	20021005	200324

CN 1427700	A	20030702	CN 2001809097	A	20010405	200361
JP 2003530151	W	20031014	JP 2001574036	A	20010405	200368
			WO 2001US11456	A	20010405	
US 20030220648	A1	20031127	US 2000194685	P	20000405	200378
			US 2001827260	A	20010405	
			US 2003420206	A	20030422	
US 20030233096	A1	20031218	US 2000194685	P	20000405	200401
			US 2001827260	A	20010405	
			US 2003397049	A	20030325	
US 6726691	B2	20040427	US 98134323	A	19980814	200429
			US 2000194685	P	20000405	
			US 2001827260	A	20010405	
AU 2001253267	A2	20011023	AU 2001253267	A	20010405	200433
US 20040167562	A1	20040826	US 98134323	A	19980814	200457
			US 2000194685	P	20000405	
			US 2001827260	A	20010405	
			US 2004783723	A	20040220	

Priority Applications (No Type Date): US 2000194685 P 20000405; US 2001827260 A 20010405; US 2003420206 A 20030422; US 2003397049 A 20030325 ; US 98134323 A 19980814; US 2004783723 A 20040220

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200176514 A2 E 60 A61F-002/44

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200153267 A Based on patent WO 200176514

US 20020161373 A1 A61F-005/00 Provisional application US 2000194685

EP 1272131 A2 E A61F-002/46 Based on patent WO 200176514

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK'NL PT RO SE SI TR

KR 2002091179 A A61F-002/44

CN 1427700 A A61F-002/46

JP 2003530151 W 60 A61B-017/56 Based on patent WO 200176514

US 20030220648 A1 A61F-005/00 Provisional application US 2000194685

US 20030233096 A1 A61F-005/00 Div ex application US 2001827260  
Provisional application US 2000194685

US 6726691 B2 A61B-017/58 CIP of application US 2001827260  
CIP of application US 98134323  
Provisional application US 2000194685  
CIP of patent US 6241734

AU 2001253267 A2 A61F-002/44 Based on patent WO 200176514

US 20040167562 A1 A61M-029/00 CIP of application US 98134323  
Provisional application US 2000194685

Div ex application US 2001827260  
CIP of patent US 6241734  
Div ex patent US 6726691

Abstract (Basic): WO 200176514 A2

NOVELTY - A vertebral compression fracture is treated or prevented by inserting an insertion device into a vertebral body; inserting a cavity-forming device through the insertion device into a **cancellous bone** (115) in the vertebral body (105); displacing **cancellous bone** to create a cavity (170) and a barrier region of compressed **cancellous**

**bone** ; and filling the cavity with a filler (180).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a **balloon** catheter comprising a lumen within the tube, an expandable material, and an opening communicating with the lumen.

USE - For treating, i.e. repairing, reinforcing, and/or treating fractured and/or diseased bone.

ADVANTAGE - The method obviates the need for high pressure injection of bone filler, thus reducing the possibilities of cement leakage and/or extravazation outside of the bone. The creation of flow paths permits greater control in the placement of the bone filler material within the vertebral body.

DESCRIPTION OF DRAWING(S) - The figure is a lateral view of a lumbar vertebra.

Vertebral body (105)

**Cancellous bone** (115)

Cavity (170)

Filler (180)

pp; 60 DwgNo 8A/20

Title Terms: TREAT; PREVENT; VERTEBRA; COMPRESS; FRACTURE; INSERT; CAVITY; FORMING; DEVICE; BONE; CAVITY; BARRIER; REGION; COMPRESS; BONE; FILL; CAVITY; FILL

Derwent Class: A96; B07; D22; P31; P32; P34

International Patent Class (Main): A61B-017/56; A61B-017/58; **A61F-002/44** ; **A61F-002/46** ; **A61F-005/00** ; A61M-029/00

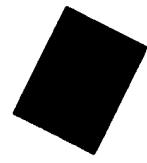
International Patent Class (Additional): A61L-027/00; A61L-027/56; A61M-025/00; A61M-025/10

File Segment: CPI; EngPI

?

52/5/18 (Item 18 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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*Hand flag*



010373916 \*\*Image available\*\*

WPI Acc No: 1995-275278/199536

Related WPI Acc No: 1997-051751; 1998-593868; 1999-059975; 1999-371276;  
2000-086828; 2003-209147; 2003-417635; 2003-697288; 2003-776174;  
2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775;  
2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRPX Acc No: N95-210398

**Inflatable balloon for use in surgical protocol relating to fixation of bone - has non-expandable body of predetermined shape and size when inflated, with restrainers to limit shape and size**

Patent Assignee: REILEY M A (REIL-I); SCHOLTEN A (SCHO-I); TALMADGE K (TALM-I); KYPHON INC (KYPH-N); RAILY M A (RAIL-I); SCOLTON A (SCOL-I); TALMAGI K (TALM-I); TALMAGIE K (TALM-I)

Inventor: REILEY M A; SCHOLTEN A; TALMADGE K; SCOLTON A; TALMAGIE K

Number of Countries: 061 Number of Patents: 022

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9520362	A1	19950803	WO 95US1011	A	19950124	199536	B
AU 9516073	A	19950815	AU 9516073	A	19950124	199546	
NO 9603115	A	19960925	WO 95US1011	A	19950124	199648	
			NO 963115	A	19960725		
EP 741547	A1	19961113	EP 95908122	A	19950124	199650	
			WO 95US1011	A	19950124		
JP 9508292	W	19970826	JP 95520152	A	19950124	199744	
			WO 95US1011	A	19950124		
KR 97700458	A	19970212	WO 95US1011	A	19950124	199809	
			KR 96704019	A	19960725		
NZ 279442	A	19980226	NZ 279442	A	19950124	199813	
			WO 95US1011	A	19950124		
AU 702330	B	19990218	AU 9516073	A	19950124	199919	
US 6066154	A	20000523	US 94188224	A	19940126	200032	
			US 97792934	A	19970122		
RU 2147213	C1	20000410	WO 95US1011	A	19950124	200052	
			RU 96117032	A	19950124		
US 6235043	B1	20010522	US 94188224	A	19940126	200130	
			US 97788786	A	19970123		
US 20010011174	A1	20010802	US 94188224	A	19940126	200147	
			US 2001788786	A	20010220		
			US 2001811336	A	20010316		
US 20010044626	A1	20011122	US 97788786	A	19970123	200176	N
			US 9859796	A	19980413		
US 6423083	B1	20020723	US 97788786	A	19970123	200254	N
			US 9859796	A	19980413		
JP 3333211	B2	20021015	JP 95520152	A	19950124	200275	
			WO 95US1011	A	19950124		
KR 355207	B	20030124	WO 95US1011	A	19950124	200339	
			KR 96704019	A	19960725		
US 6663647	B2	20031216	US 94188224	A	19940126	200382	
			US 97788786	A	19970123		
			US 9859796	A	19980413		
			US 2002200674	A	20020722		
US 20040153114	A1	20040805	US 94188224	A	19940126	200452	
			US 97788786	A	19970123		
			US 9859796	A	19980413		
			US 2002200674	A	20020722		
			US 2003411573	A	20030410		
			US 2003747547	A	20031229		

EP 1464293	A1	20041006	EP 95908122	A	19950124	200465
			EP 200476935	A	19950124	
EP 1498079	A1	20050119	EP 95908122	A	19950124	200506
			EP 200477703	A	19950124	
EP 741547	B1	20050420	EP 95908122	A	19950124	200528
			WO 95US1011	A	19950124	
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			EP 200477703	A		
DE 69534156	E	20050525	DE 95634156	A	19950124	200538
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Priority Applications (No Type Date): US 94188224 A 19940126; US 97792934 A 19970122; US 97788786 A 19970123; US 2001788786 A 20010220; US 2001811336 A 20010316; US 9859796 A 19980413; US 2002200674 A 20020722; US 2003411573 A 20030410; US 2003747547 A 20031229

Cited Patents: US 5108404; US 5331975; US 5361752

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 9520362	A1	E	53	A61B-017/68

Designated States (National): AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU JP KE KG KP KR KZ LK LR LT LU LV MD MG MN MW MX NL NO NZ PL PT RO RU SD SE SI SK TJ TT UA UZ VN

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ

AU 9516073	A		Based on patent WO 9520362
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EP 741547	A1	E	53	Based on patent WO 9520362
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Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

JP 9508292	W	45	A61B-017/56	Based on patent WO 9520362
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KR 97700458	A		A61B-017/68	Based on patent WO 9520362
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NZ 279442	A			Based on patent WO 9520362
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AU 702330	B			Previous Publ. patent AU 9516073
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US 6066154	A		A61B-017/56	Based on patent WO 9520362
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RU 2147213	C1		A61B-017/68	Div ex application US 94188224
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US 6235043	B1		A61M-029/00	Based on patent WO 9520362
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US 20010011174	A1		A61B-017/56	Cont of application US 94188224
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				Cont of application US 94188224
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US 20010044626	A1		A61F-005/04	Div ex application US 2001788786
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				Div ex application US 97788786
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US 6423083	B1		A61B-017/56	Div ex application US 97788786
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JP 3333211	B2	17	A61B-017/56	Previous Publ. patent JP 9508292
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				Based on patent WO 9520362
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KR 355207	B		A61B-017/68	Previous Publ. patent KR 97700458
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				Based on patent WO 9520362
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US 6663647	B2		A61B-017/56	Cont of application US 94188224
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				Div ex application US 97788786
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				Div ex application US 9859796
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				Div ex patent US 6235043
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				Div ex patent US 6423083
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				Div ex patent US 94188224
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				Div ex application US 97788786
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				Div ex application US 9859796
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				Div ex application US 2002200674
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				Div ex application US 2003411573
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				Div ex patent US 6235043
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				Div ex patent US 6423083
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				Div ex patent US 6663647
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				Div ex application EP 95908122
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				Div ex patent EP 741547
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Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC  
NL PT SE

EP 1498079 A1 E A61B-017/68 Div ex application EP 95908122  
Div ex patent EP 741547

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC  
NL PT SE

EP 741547 B1 E A61B-017/68 Div ex application EP 200476935  
Div ex application EP 200477703  
Div ex patent EP 1464293  
Div ex patent EP 1498079  
Based on patent WO 9520362

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC  
NL PT SE

DE 69534156 E A61B-017/68 Based on patent EP 741547  
Based on patent WO 9520362

Abstract (Basic): WO 9520362 A

The balloon comprises inflatable balloon body (12,14) for insertion into the bone. The body has a shape and size to compress at least a portion of the **cancellous bone**, to form a cavity in the **cancellous bone**, and restore the original position of the outer cortical bone, if fractured or collapsed. The balloon is prevented from applying excessive pressure to the outer cortical bone.

The **wall** or **walls** of the balloon are such that the proper inflation of the balloon body is achieved to provide for optimum compression of all the bone marrow. The balloon is folded so that it can be easily inserted into the bone. The balloon can be made to have a suction catheter (16) and has a member of restraint of size and shape.

USE/ADVANTAGE - For compacting bone marrow and/or the **trabecular bone** and/or **cancellous bone** against the inner surface of the cortical **wall** of the bone. Significantly improves treatment by incorporating additional engineering features.

Dwg.1/20

Title Terms: INFLATE; BALLOON; SURGICAL; PROTOCOL; RELATED; FIX; BONE; NON; EXPAND; BODY; PREDETERMINED; SHAPE; SIZE; INFLATE; RESTRAIN; LIMIT; SHAPE ; SIZE

Derwent Class: P31; P32; P34

International Patent Class (Main): A61B-017/56; A61B-017/68; **A61F-005/04** ; A61M-029/00

International Patent Class (Additional): A61B-017/88; **A61F-002/46** ; A61M-025/10

File Segment: EngPI

Set	Items	Description
S1	2436	KYPHOPLAST? OR VERTEBROPLAST? OR (KYPHO OR VERTEBRO) () (PLAST???)
S2	2227257	EXPAND? OR INFLAT? OR DISTEND? OR DISTENSION? OR OPEN???? - OR INSUFFLAT? OR DILAT?????
S3	317112	BOLUS? OR BALLOON? OR TAMP? ? OR TAMPING
S4	46259	(CANCELL??? OR TRABECULA? OR SPONG? OR POROUS? OR LATTICE(-) WORK? OR MEDULLA?) (N) (BONE? ? OR SUBSTAN?)
S5	10112157	PLATFORM? OR SUPPORT? ? OR FOUNDATION? OR GUID??? OR BARRIER? OR BLOCK??? OR PLATE? ?
S6	1357986	ARM OR ARMS? OR WALL OR WALLS?
S7	7316873	PROJECT???? OR EXTEND??? OR EXTENSION? OR RESTRAIN??? OR CONSTRAIN??? OR OBSTRUCT??? OR DIRECT????
S8	2002351	CATHETER? OR CANNULA? OR CANULA? OR SHEATH? OR SHUNT? OR TUBE OR TUBES OR CONDUIT? OR STENT? OR TUBING OR TUBULAR OR HOLLOW? ?
S9	73	S1 AND S4
S10	50	S1(S)S4
S11	26	RD (unique items)
S12	200	S1(S)S3
S13	182312	S7(7N)S5:S6
S14	0	S12 AND S13
S15	15	S12 AND S8
S16	9	RD (unique items)
S17	56241	S2(5N)S3
S18	20	S17 AND S4
S19	20	S18 NOT S15
S20	9	RD (unique items)
S21	553	S13 AND S17
S22	2	S21 AND S4
S23	0	S22 NOT (S15 OR S19)
S24	4906144	COMPACT? OR CONDENS? OR COMPRESS? OR PACK?? OR PACKING OR - PRESS???
S25	4906144	S24(10N)S24
S26	2697	S4(10N)S24
S27	6	S26 AND S17
S28	0	S27 NOT (S15 OR S19)
S29	17	S26 AND S13
S30	17	S29 NOT (S15 OR S16)
S31	9	RD (unique items)
S32	10913	S13 AND S8
S33	1	S32 AND S26
S34	11	S32 AND S4
S35	10	S34 NOT (S15 OR S19 OR S30 OR S33)
S36	4	RD (unique items)
S37	1756	S2:S3 AND S4
S38	105	S37 AND S7 AND S5:S6
S39	102	S38 NOT (S15 OR S19 OR S30 OR S33)
S40	70	RD (unique items)
S41	64	S37(S)S7(S)S5:S6
S42	62	S41 NOT (S15 OR S19 OR S30 OR S33)
S43	37	RD (unique items)
S44	10	KYPHX
S45	4	RD (unique items)
? show files		
File	5:Biosis Previews(R) 1969-2005/Jul W4	
	(c) 2005 BIOSIS	
File	34:SciSearch(R) Cited Ref Sci 1990-2005/Jul W4	
	(c) 2005 Inst for Sci Info	
File	434:SciSearch(R) Cited Ref Sci 1974-1989/Dec	
	(c) 1998 Inst for Sci Info	

File 73:EMBASE 1974-2005/Jul 28  
(c) 2005 Elsevier Science B.V.  
File 155:MEDLINE(R) 1951-2005/Jul W4  
(c) format only 2005 The Dialog Corp.  
File 144:Pascal 1973-2005/Jul W3  
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File 94:JICST-EPlus 1985-2005/Jun W1  
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File 35:Dissertation Abs Online 1861-2005/Jun  
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(c) 2005 The HW Wilson Co.

11/5/12 (Item 7 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
(c) 2005 Inst for Sci Info. All rts. reserv.

12517953 Genuine Article#: 775WE Number of References: 32

**Title: Conventional and semi-open kyphoplasty**

Author(s): Boszczyk BM (REPRINT) ; Bierschneider M; Hauck S; Vastmans J; Potulski M; Beisse R; Robert B; Jaksche H

Corporate Source: Berufsgenossenschaftliche Unfallklin Murnau, Abt Neurochirurg, Prof Kuntscher Str 8/D-82418 Murnau//Germany/ (REPRINT); Berufsgenossenschaftliche Unfallklin Murnau, Abt Neurochirurg, D-82418 Murnau//Germany/

Journal: ORTHOPADE, 2004, V33, N1 (JAN), P13-21

ISSN: 0085-4530 Publication date: 20040100

Publisher: SPRINGER-VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010 USA

Language: German Document Type: ARTICLE

Geographic Location: Germany

Journal Subject Category: ORTHOPEDICS

**Abstract:** **Kyphoplasty** is a young method which was developed for the minimally invasive augmentation of osteoporotic vertebral fractures. In contrast to **vertebroplasty**, the **kyphoplasty** technique allows an age-dependent fracture reduction through the inflation of a special balloon in the fractured **cancellous bone** of the vertebral body. The **cancellous bone** of the fracture zone is compressed by the balloon, so that a cavity remains in the vertebral body after removing the balloon, which is filled with highly viscous augmentation material. The reduced risk of serious complications, for example epidural leakage of augmentation material, justifies progressively expanding the indications for this technique to traumatic fractures with involvement of the posterior vertebral wall and neoplastic vertebral collapse due to osteolytic metastasis. Besides the indications for the conventional percutaneous approaches, the microsurgical interlaminar approach allows the use of **kyphoplasty** in more complex fractures involving compression of the neural structures.

Kyphoplasty induces swift pain relief and allows rapid mobilisation of patients due to the immediate stabilisation of the affected vertebral bodies. Apart from the operative intervention, the medical treatment of the primary disease and the rehabilitation of the individual patient should be optimised through an interdisciplinary approach.

Descriptors--Author Keywords: kyphoplasty ; spine ; minimally invasive surgery ; vertebral fracture

Identifiers--KeyWord Plus(R): VERTEBRAL COMPRESSION FRACTURES; PERCUTANEOUS VERTEBROPLASTY; PULMONARY-EMBOLISM; THORACOLUMBAR SPINE; ACRYLIC CEMENT; COMPLICATIONS; PREVALENT

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11/5/24 (Item 1 from file: 144)

DIALOG(R) File 144:Pascal

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15860849 PASCAL No.: 02-0580658

**An in vivo comparison of the potential for extravertebral cement leak  
after Vertebroplasty and kyphoplasty. Point of View**

PHILLIPS Frank M; WETZEL F Todd; LIEBERMAN Isadore; CAMPBELL-HUPP Marrion  
; BARR John D

University of Chicago Spine Center, Chicago, Illinois, United States;  
Department of Orthopaedics, Cleveland Clinic, Cleveland, Ohio, United  
States; Center for Neuroendovascular Surgery, Baptist Memorial Hospitals,  
Mid South Imaging and Therapeutics, Memphis, Tennessee, United States

Journal: Spine : (Philadelphia, PA. 1976), 2002, 27 (19) 2173-2179

ISSN: 0362-2436 CODEN: SPINDD Availability: INIST-18922;

354000102150780150

No. of Refs.: 36 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: United States

Language: English

Study Design. A prospective in vivo study was conducted during the performance of kyphoplasty for the treatment of osteoporotic vertebral compression fractures, comparing extravertebral contrast extravasation with kyphoplasty and vertebroplasty. Objective. To determine the frequency and pattern of extravertebral contrast extravasation after intravertebral injection during kyphoplasty and vertebroplasty, which have implications for cement leakage during these procedures. of Background Data Vertebroplasty involves the injection of cement directly into the cancellous bone of a fractured vertebral body in an attempt to stabilize the fracture. High rates of extravertebral cement leakage have been noted. Injection of contrast into the vertebral body under fluoroscopy has been recommended in an attempt to predict and minimize cement leakage. An alternative procedure, balloon kyphoplasty, involves the percutaneous placement of an inflatable bone tamp into the fractured vertebral body. As the tamp is inflated, vertebral body height is restored and a cavity is created within the vertebral body, allowing for low-pressure cement filling of the cavity. Methods. During 20 kyphoplasty surgeries for vertebral compression fractures, contrast studies were performed. Immediately after positioning of an 11-gauge biopsy needle within the midvertebral body, 5 mL of Omnipaque was injected, mimicking vertebroplasty injection. Cinefluoroscopic images were obtained during injection. After bilateral

fracture reduction and intravertebral cavity creation using inflatable bone tamps ( **kyphoplasty** ), contrast was injected again, mirnicking cement injection during **kyphoplasty** . Scoring of the extra-vertebral contrast leakage was based on filling of the inferior vena eava and epidural vessels, as well as direct contrast extension through the vertebral cortex. Results. The mean contrast leak scores for **vertebroplasty** - and **kyphoplasty** -stageinjections were, respectively, 4.3 and 0.8 of 6 (P = 0.0001). The scores for epidural vessel and inferior vena cava filling and transcortical contrast leak each was significantly lower for **kyphoplasty** - than for **vertebroplasty** -stage injections (P = 0.0001 each). Conclusions. Thj findings showed less vascular and transcortical extravasation of injected contrast with **kyphoplasty** than with **vertebroplasty** . Although leakag of contrats may not correlate precisely with polymethyl-methacrylate leakage, the authors believe this study high-lights the relative safety of these procedures.

English Descriptors: Plasty; Vertebra; Treatment; Fracture; Spine; Association; Osteoporosis; Comparative study; Technique; Leak; Intraoperative; Cement; Radioscopy; Contrast media; Human; Extravasation; In vivo

Broad Descriptors: Orthopedic surgery; Diseases of the osteoarticular system; Trauma; Spine disease; Bone disease; Radiodiagnosis; Chirurgie orthopedique; Systeme osteoarticulaire pathologie; Traumatisme; Rachis pathologie; Osteopathie; Radiodiagnostic; Cirugia ortopedica; Sistema osteoarticular patologia; Traumatismo; Raquis patologia; Osteopatia; Radiodiagnostico

French Descriptors: Plastie; Vertebre; Traitement; Fracture; Rachis; Association; Osteoporose; Etude comparative; Technique; Fuite; Peroperatoire; Ciment; Radioscopie; Produit contraste; Homme; Extravasation; In vivo; Cyphoplastie; Vertebroplastie; Tassement vertebral

Classification Codes: 002B25I

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16/5/1 (Item 1 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
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0014545109 BIOSIS NO.: 200300500137

**Use of a screw-syringe injector for cement delivery during kyphoplasty:  
Technical report.**

AUTHOR: Amar Arun Paul (Reprint); Larsen Donald W; Teitelbaum George P  
AUTHOR ADDRESS: Department of Neurological Surgery, 1200 North State

Street, Suite 5046, Los Angeles, CA, 90033-1029, USA\*\*USA

AUTHOR E-MAIL ADDRESS: amar@aya.yale.edu

JOURNAL: Neurosurgery (Hagerstown) 53 (2): p380-383 August 2003 2003

MEDIUM: print

ISSN: 0148-396X (ISSN print)

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

**ABSTRACT:** OBJECTIVE: Percutaneous **kyphoplasty** is postulated to have several advantages over percutaneous **vertebroplasty** for the treatment of vertebral compression fractures and is gaining increased popularity. However, cement delivery with the KyphX kit (Kyphon, Inc., Santa Clara, CA), the only commercially available device for percutaneous **kyphoplasty**, is relatively problematic. This kit uses a series of "bone filler device" (BFD) **tubes**. Each BFD must be loaded manually with cement, which is then injected into the **kyphoplasty** cavity by manually depressing an inner stylet. The high profile of the BFD **cannulas** and their stylets requires frequent repositioning of the image intensifier **tube** and table. Because each accommodates only a small volume, the BFDs must be exchanged frequently. This delivery method also places the operator's hands directly in the field of radiation. We sought to overcome these limitations. METHODS: Dissatisfied with the shortcomings of the BFDs, we substituted the EZflow screw-syringe injector (Parallax Medical, Mountain View, CA) we use to deliver cement during conventional percutaneous **vertebroplasty**. This amalgam of the KyphX kit and the screw-syringe injector has been used for **kyphoplasty** treatment of 26 thoracolumbar compression fractures in 17 patients. RESULTS: The screw-syringe injector allows controlled volumetric delivery of large **boluses** of high-viscosity cement without having to refill the reservoir. It minimizes radiation exposure and does not require repositioning of the x-ray **tubes**. It may theoretically allow decompression should cement extrusion occur. Also, it delivers cement to the interstices of bony trabeculae outside the **kyphoplasty** cavity, thus combining the mechanical benefits of percutaneous **kyphoplasty** and percutaneous **vertebroplasty**. CONCLUSION: The use of a screw-syringe injector has several merits over the customary means of cement delivery during **kyphoplasty**.

**DESCRIPTORS:**

MAJOR CONCEPTS: Equipment Apparatus Devices and Instruments; Methods and Techniques; Orthopedics--Human Medicine, Medical Sciences

BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: human (Hominidae)--patient

COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates

DISEASES: thoracolumbar compression fracture--bone disease, injury, therapy

CHEMICALS & BIOCHEMICALS: cement--delivery

METHODS & EQUIPMENT: EZflow screw-syringe injector--medical equipment;

percutaneous kyphoplasty--clinical techniques, therapeutic and prophylactic techniques

CONCEPT CODES:

12512 Pathology - Therapy

18006 Bones, joints, fasciae, connective and adipose tissue - Pathology

BIOSYSTEMATIC CODES:

86215 Hominidae

16/5/2 (Item 1 from file: 34)

DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
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12789406 Genuine Article#: 821MU Number of References: 41

**Title: Kyphoplasty for treatment of osteoporotic vertebral fractures**

Author(s): Heini PF (REPRINT) ; Orler R

Corporate Source: Inselspital Bern,Dept Orthopaed Surg, Spine Serv, Freiburgstr/CH-3010 Bern//Switzerland/ (REPRINT); Inselspital Bern, Dept Orthopaed Surg, Spine Serv, CH-3010 Bern//Switzerland/

Journal: EUROPEAN SPINE JOURNAL, 2004, V13, N3 (MAY), P184-192

ISSN: 0940-6719 Publication date: 20040500

Publisher: SPRINGER-VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010 USA

Language: English Document Type: REVIEW

Geographic Location: Switzerland

Journal Subject Category: CLINICAL NEUROLOGY; ORTHOPEDICS

Abstract: Cement reinforcement for the treatment of osteoporotic vertebral fractures is efficient mean with high success in pain release and prevention of further sintering of the reinforced vertebrae; however, the technique does not allow to address the kyphotic deformity.

**Kyphoplasty** was designed to address the kyphotic deformity and help to realign the spine. It involves the percutaneous placement of an inflatable bone **tamp** into a vertebral body. Restoration of VB height and kyphosis correction is achieved by inflation of the bone **tamp** with liquid. After deflation, a cavity is created that eases the cement application. The potential of kyphosis reduction is given in fresh fractures with a range of 0-90% for height restoration and absolute correction of the kyphotic angle of 8.5degrees. The cavity formation, on one hand, and the different cementing technique leads to lower risk for cement extravasation. An alternative method for kyphosis correction represents the so-called lordoplasty where the adjacent vertebrae are reinforced first and with the **cannulas** in place acting as a lever the reduction of the collapsed vertebra can be performed. The results with respect to kyphosis correction are superior in comparison with a **kyphoplasty** procedure.

Descriptors--Author Keywords: spine ; osteoporosis ; kyphoplasty ; vertebroplasty ; lordoplasty

Identifiers--KeyWord Plus(R): VIVO BIOMECHANICAL EVALUATION; BODY COMPRESSION FRACTURES; QUALITY-OF-LIFE; PERCUTANEOUS **VERTEBROPLASTY** ; **BALLOON KYPHOPLASTY** ; CEMENT; WOMEN; OUTCOMES; PAIN; STABILIZATION

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16/5/4 (Item 1 from file: 73)

DIALOG(R) File 73:EMBASE

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13196431 EMBASE No: 2005263142

Minimally invasive reduction and internal stabilization of osteoporotic vertebral body fractures ( Balloon Kyphoplasty )

MINIMAL INVASIVE REPOSITION UND INNERE STABILISIERUNG OSTEOPOROTISCHER WIRBELKORPER FRAKTUREN (BALLONIKYPHOPLASTIE)

Hillmeier J.; Meeder P.J.; Noldge G.; Kasperk C.

Dr. J. Hillmeier, Abteilung fur Unfall- und Orthopadische Chirurgie, St.-Vincenz-Krankenhaus Limburg, Lehrkrankenhaus der Universitat Giessen, Auf dem Schafberg, D-65549 Limburg Germany

AUTHOR EMAIL: j.hillmeier@st-vincenz.de

Operative Orthopadie und Traumatologie ( OPER. ORTHOP. TRAUMATOL. ) ( Germany) 2003, 15/4 (343-362)

CODEN: OOTPA ISSN: 0934-6694

DOCUMENT TYPE: Journal ; Article

LANGUAGE: GERMAN; ENGLISH SUMMARY LANGUAGE: GERMAN; ENGLISH

NUMBER OF REFERENCES: 19

Objective: Restoration of height of a fractured vertebral body with an inflatable balloon system introduced transpedicularly into the vertebral body. The system creates a cavity that is filled with bone cement. This minimally invasive procedure creates an internal stabilization.

Indications: Osteoporotic vertebral compression fractures with an intact posterior wall. Osteolytic metastases. Primary benign vertebral tumors such as hemangioma. Traumatic compression fractures with an intact posterior

wall. Contraindications: Unstable burst fractures involving the posterior wall. Coagulopathies. Disk herniation accompanied by radiculopathy. Compression of entire vertebral body (vertebra plana). Surgical Technique: In prone position and under fluoroscopic control transpedicular placement of Yamshidi needles into the posterior third of the vertebral body through stab incisions. Insertion of guide wires through these needles for proper placement of working **cannulae**. Drilling of a channel for insertion of the balloon system. Under fluoroscopy in two planes, pressure-controlled filling of the balloon with a contrast medium. Once the proper vertebral height has been obtained, removal of contrast medium and balloon and filling of the cavity with cement avoiding any leakage into the spinal canal. Once the cement has hardened, removal of working **cannulae**, skin closure. Results: In a prospective study of 95 patients (165 vertebral bodies) with osteoporotic fractures treated with PMMA cement or calcium phosphate filling, we observed a marked symptom reduction in 89%. The average restoration of height amounted to 16%. Cement leakage not leading to any complications occurred in 14 vertebral bodies (8%), a percentage far below published values of 20-70%. (c) Urban & Vogel Munchen 2003.

DEVICE BRAND NAME/MANUFACTURER NAME: Yamshidi

DRUG DESCRIPTORS:

contrast medium; gentamicin bone cement; calcium phosphate

MEDICAL DESCRIPTORS:

\*fragility fracture--surgery--su; \*vertebra fracture--surgery--su; \*  
kyphoplasty

minimally invasive surgery; vertebra body; spine stabilization; treatment indication; treatment contraindication; surgical technique; surgical approach; guide wire; fluoroscopy; vertebral canal; prospective study; treatment outcome; body height; human; major clinical study; clinical trial; article; priority journal

CAS REGISTRY NO.: 10103-46-5, 13767-12-9, 14358-97-5, 7758-87-4 (calcium phosphate)

SECTION HEADINGS:

027 Biophysics, Bioengineering and Medical Instrumentation

033 Orthopedic Surgery

16/5/5 (Item 2 from file: 73)

DIALOG(R) File 73:EMBASE

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12471970 EMBASE No: 2004071275

**Ballon kyphoplasty for vertebral compression fracture using a unilateral balloon tamp via a uni-pedicular approach: Technical note**

Hoh B.L.; Rabinov J.D.; Pryor J.C.; Hirsch J.A.

Dr. J.A. Hirsch, Neurosurgical Service, Massachusetts General Hospital, Harvard Medical School, 55 Fruit Street, Boston, MA 02114 United States

AUTHOR EMAIL: jahirsch@partners.org

Pain Physician ( PAIN PHYS. ) (United States) 2004, 7/1 (111-114)

CODEN: PPAHA ISSN: 1533-3159

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 4

Objective: Percutaneous **balloon kyphoplasty**, like percutaneous **vertebroplasty** is a therapeutic intervention for painful osteoporotic vertebral body compression fracture. The procedure involves placement of bilateral inflatable **balloon tamps** in the fractured vertebral body via a bilateral transpedicular or bilateral extra-pedicular approach. We describe performance of **balloon kyphoplasty** using a unilateral, single, **balloon tamp** via a unilateral transpedicular approach. The advantages

of a unilateral approach are reducing the risk, albeit low, of pedicle fracture, medial transgression of the pedicle and/or transgression into the spinal canal, nerve injury, cement extravasation along the **cannula** tract, and spinal epidural hematoma. Additionally, operative and anesthesia time is reduced, as well as the costs of **balloon tamps**, **cannulas**, and needles. Case Illustration: An 83-year-old woman with osteoporosis presented with severe lower thoracic back pain which occurred when she bent over to lift a heavy box. The pain was reproducible on palpation of the T-11 spinous process. A spine MRI with STIR (short tau inversion recovery) sequence demonstrated a subacute T-11 vertebral body compression fracture with associated edema. A T-11 **balloon kyphoplasty** was performed using a unilateral inflatable **balloon tamp** via a unilateral transpedicular approach. The patient reported immediate relief of pain and improvement of visual analog score (VAS) for pain from preoperative 10 to postoperative 2. She was able to ambulate postoperatively whereas preoperatively she was inhibited by pain. Conclusion: **Balloon kyphoplasty** can be performed using a unilateral **balloon tamp** via a unilateral pedicular approach. The key is a medial needle trajectory with a final **balloon** position in the midline of the vertebral body.

MEDICAL DESCRIPTORS:

\*vertebra fracture--diagnosis--di; \*vertebra fracture--surgery--su  
balloon; surgical approach; surgical technique; percutaneous vertebroplasty ; clinical feature; osteoporosis; low back pain; palpation; nuclear magnetic resonance imaging; visual analog scale; edema; disease association ; fluoroscopy; vertebra body; human; female; case report; aged; article

SECTION HEADINGS:

008 Neurology and Neurosurgery

014 Radiology

033 Orthopedic Surgery

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20/5/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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0014679610 BIOSIS NO.: 200400060367

**Inflatable device for use in surgical protocol relating to fixation of bone**

AUTHOR: Reiley Mark A (Reprint); Scholten Arie; Talmadge Karen  
JOURNAL: Official Gazette of the United States Patent and Trademark Office  
Patents 1277 (3): Dec. 16, 2003 2003

MEDIUM: e-file

PATENT NUMBER: US 6663647 PATENT DATE GRANTED: December 16, 2003 20031216  
PATENT CLASSIFICATION: 606-192 PATENT ASSIGNEE: Kyphon Inc.

PATENT COUNTRY: USA

ISSN: 0098-1133 (ISSN print)

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English

**ABSTRACT:** A balloon for use in compressing cancellous bone and marrow (also known as medullary bone or trabecular bone) against the inner cortex of bones whether the bones are fractured or not. The balloon comprises an inflatable, non-expandable balloon body for insertion into said bone. The body has a shape and size to compress at least a portion of the cancellous bone to form a cavity in the cancellous bone and to restore the original position of the outer cortical bone, if fractured or collapsed. The balloon is prevented from applying excessive pressure to the outer cortical bone. The wall or walls of the balloon are such that proper inflation the balloon body is achieved to provide for optimum compression of all the bone marrow. The balloon is able to be folded so that it can be inserted quickly into a bone. The balloon can be made to have a suction catheter. The main purpose of the balloon is the forming or enlarging of a cavity or passage in a bone, especially in, but not limited to, vertebral bodies.

**DESCRIPTORS:**

MAJOR CONCEPTS: Equipment Apparatus Devices and Instrumentation; Methods and Techniques; Orthopedics--Human Medicine, Medical Sciences; Surgery --Medical Sciences

METHODS & EQUIPMENT: balloon--surgical instrument; bone fixation method-- clinical techniques, therapeutic and prophylactic techniques

**CONCEPT CODES:**

11105 Anatomy and Histology - Surgery

12512 Pathology - Therapy

18006 Bones, joints, fasciae, connective and adipose tissue - Pathology

20/5/2 (Item 2 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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0014439905 BIOSIS NO.: 200300398335

**Histologic evaluation of human vertebral bodies after vertebral augmentation with polymethyl methacrylate.**

AUTHOR: Togawa Daisuke; Bauer Thomas W (Reprint); Lieberman Isador H; Takikawa Satoshi

AUTHOR ADDRESS: Departments of Orthopaedic Surgery and Pathology, Cleveland Clinic Foundation, 9500 Euclid Avenue, L-25, Cleveland, OH, 44195, USA\*\* USA

AUTHOR E-MAIL ADDRESS: osteoclast@aol.com

JOURNAL: Spine 28 (14): p1521-1527 July 15, 2003 2003

MEDIUM: print  
ISSN: 0362-2436 (ISSN print)  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

**ABSTRACT:** Study Design: Histologic documentation of vertebral bodies retrieved from human patients. Objectives: The purpose of this study is to illustrate the histologic findings of two cases in which vertebroplasty and/or kyphoplasty had been performed. Summary of Background Data: There are a number of controversies to vertebral augmentation, including the use of **inflatable** bone **tamps**, use of nonstandardized polymethylmethacrylate (PMMA) preparations, the extent and significance of thermal necrosis, any foreign body reaction, and cement extravasation. Methods: Four vertebral bodies from two cases ranging from 1 month to 2 years after surgery were analyzed histologically. Microscope slides of retrieved vertebral bodies were reviewed with special reference for evidence of thermal necrosis, foreign body reaction, migration of cement, cement voids and fractures, and for the influence of the bone tamp on adjacent bone. Results: The **cancellous bone** around the cement of the kyphoplasty specimen showed good density, suggesting that the tamping had displaced bone, essentially autografting the space around the cement. Bone immediately around the cement did not show extensive necrosis, but there were a few spicules of necrotic bone associated with creeping substitution, suggesting either thermal effect, the original fracture, or displacement of bone by the procedure. Foreign body giant cells and macrophages were identified in the fibrous membrane around the PMMA in all segments. These cells contained material consistent with cement particles and/or barium sulfate. Particles were also present within vascular spaces. Conclusions: To our knowledge, these cases are among the first published reports of human histology after vertebral cement augmentation and have implications concerning the nature of the surgical procedures as well as the material used for injection.

REGISTRY NUMBERS: 9011-14-7: polymethyl methacrylate

DESCRIPTORS:

MAJOR CONCEPTS: Methods and Techniques; Skeletal System--Movement and Support

BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: human (Hominidae)

ORGANISMS: PARTS ETC: bone--skeletal system; macrophage--blood and lymphatics, immune system; vertebral body--skeletal system

COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates

DISEASES: thermal necrosis--injury

CHEMICALS & BIOCHEMICALS: polymethyl methacrylate

METHODS & EQUIPMENT: histologic evaluation--histology and cytology techniques, laboratory techniques; vertebral augmentation--experimental surgical techniques, laboratory techniques

MISCELLANEOUS TERMS: bone density; cement migration; foreign body reaction

CONCEPT CODES:

02506 Cytology - Animal

02508 Cytology - Human

15002 Blood - Blood and lymph studies

15004 Blood - Blood cell studies

18004 Bones, joints, fasciae, connective and adipose tissue - Physiology and biochemistry

34502 Immunology - General and methods

BIOSYSTEMATIC CODES:  
86215 Hominidae

20/5/3 (Item 3 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
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0013995687 BIOSIS NO.: 200200589198

**An in vivo comparison of the potential for extravertebral cement leak after vertebroplasty and kyphoplasty**

AUTHOR: Phillips Frank M (Reprint); Wetzel F Todd; Lieberman Isadore; Campbell-Hupp Marrion

AUTHOR ADDRESS: University of Chicago Spine Center, 4646 North Marine Drive, Chicago, IL, 60640, USA\*\*USA

JOURNAL: Spine 27 (19): p2173-2178 October 1, 2002 2002

MEDIUM: print

ISSN: 0362-2436

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

**ABSTRACT:** Study Design. A prospective in vivo study was conducted during the performance of kyphoplasty for the treatment of osteoporotic vertebral compression fractures, comparing extravertebral contrast extravasation with kyphoplasty and vertebroplasty. Objective. To determine the frequency and pattern of extravertebral contrast extravasation after intravertebral injection during kyphoplasty and vertebroplasty, which have implications for cement leakage during these procedures. Summary of Background Data. Vertebroplasty involves the injection of cement directly into the **cancellous bone** of a fractured vertebral body in an attempt to stabilize the fracture. High rates of extravertebral cement leakage have been noted. Injection of contrast into the vertebral body under fluoroscopy has been recommended in an attempt to predict and minimize cement leakage. An alternative procedure, balloon kyphoplasty, involves the percutaneous placement of an **inflatable bone tamp** into the fractured vertebral body. As the **tamp** is **inflated**, vertebral body height is restored and a cavity is created within the vertebral body, allowing for low-pressure cement filling of the cavity. Methods. During 20 kyphoplasty surgeries for vertebral compression fractures, contrast studies were performed. Immediately after positioning of an 11-gauge biopsy needle within the midvertebral body, 5 mL of Omnipaque was injected, mimicking vertebroplasty injection. Cinefluoroscopic images were obtained during injection. After bilateral fracture reduction and intravertebral cavity creation using **inflatable bone tamps** (kyphoplasty), contrast was injected again, mimicking cement injection during kyphoplasty. Scoring of the extravertebral contrast leakage was based on filling of the inferior vena cava and epidural vessels, as well as direct contrast extension through the vertebral cortex. Results. The mean contrast leak scores for vertebroplasty- and kyphoplasty-stage injections were, respectively, 4.3 and 0.8 of 6 ( $P = 0.0001$ ). The scores for epidural vessel and inferior vena cava filling and transcortical contrast leak each was significantly lower for kyphoplasty- than for vertebroplasty-stage injections ( $P = 0.0001$  each). Conclusions. The findings showed less vascular and transcortical extravasation of injected contrast with kyphoplasty than with vertebroplasty. Although leakage of contrast may not correlate precisely with polymethylmethacrylate leakage, the authors believe this study highlights the relative safety of these procedures.

DESCRIPTORS:

MAJOR CONCEPTS: Biomaterials; Orthopedics--Human Medicine, Medical Sciences; Surgery--Medical Sciences  
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia  
ORGANISMS: human (Hominidae)  
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates  
DISEASES: vertebral fracture--bone disease, injury, surgery  
MESH TERMS: Spinal Fractures (MeSH)  
CHEMICALS & BIOCHEMICALS: extravertebral cement  
METHODS & EQUIPMENT: cinefluoroscopy--imaging method; kyphoplasty--surgical method; vertebroplasty--surgical method  
CONCEPT CODES:  
10511 Biophysics - Bioengineering  
11105 Anatomy and Histology - Surgery  
12512 Pathology - Therapy  
18006 Bones, joints, fasciae, connective and adipose tissue - Pathology  
BIOSYSTEMATIC CODES:  
86215 Hominidae

20/5/4 (Item 1 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
(c) 2005 Inst for Sci Info. All rts. reserv.  
13927390 Genuine Article#: 925BM Number of References: 11  
**Title: Distraction osteogenesis in the craniofacial skeleton**  
Author(s): Robinson RC (REPRINT) ; Knapp TR  
Corporate Source: Suite 300, 7430 E Pk Meadows Dr/Lone Tree//CO/80124 (REPRINT); Private Practice Oral & Maxillofacial Surg,Lone Tree//CO/80124; OrthoNetx Inc,Superior//CO/80503(RCRobR@cs.com)  
Journal: OTOLARYNGOLOGIC CLINICS OF NORTH AMERICA, 2005, V38, N2 (APR), P 333-+  
ISSN: 0030-6665 Publication date: 20050400  
Publisher: W B SAUNDERS CO, INDEPENDENCE SQUARE WEST CURTIS CENTER, STE 300, PHILADELPHIA, PA 19106-3399 USA  
Language: English Document Type: ARTICLE  
Geographic Location: USA  
Journal Subject Category: OTORHINOLARYNGOLOGY  
Abstract: Distraction osteogenesis (DO) is a surgically induced process in which a bone of endochondral (long bone of an extremity) or membranous (skull, face) origin is subject to corticotomy (osteotomy through cortical bone, respecting cancellous bone and periosteal blood supply), then mechanically separated at a precise daily rate and rhythm. The result is the predictable production of healthy, permanent new bone in the distraction gap. The effective lengthening of bone, when properly planned and applied, may successfully correct congenital and acquired length discrepancies and deformities in limbs, jaws, facial bones, and the skull.

The term "distraction osteogenesis," however descriptive, does not tell the whole story. More precisely, tensile stress across cut bone ends to elongate or reshape a skeletal member necessarily forces remodeling and adaptive growth of surrounding soft tissues. From a clinical perspective, the better term for the process of tissue generation by application of tensile stress may be "mechanically induced growth" (MIG). The induced growth of soft tissue alone (skin, muscles, blood vessels, and nerves) is broadly used in reconstructive surgery under the rubric of tissue expansion. MIG using silicone or polyurethane balloons progressively distended with saline has enabled expanded composite tissue flap coverage of defects throughout

the body. Bone-based MIG is truly pansomatic, and the clinician who adopts this viewpoint is more likely to avoid many of the soft tissue complications that may accompany the process. These complications can include compromised blood supply with skin and soft tissue necrosis, compartment syndromes, paresthesias and paralysis, and secondary musculoskeletal injury and deformity resulting from overly tight fascia and ligament structures.

MIG based on DO was described exactly 100 years ago, in June, 1904, by A. Cordivilla of Bologna, Italy, at the eighteenth meeting of the American Association of Orthopaedic Surgeons, where he presented a paper entitled, "On the means of lengthening, in the lower limbs, the muscles and tissues which are shortened through deformity." Cordivilla described 26 cases in which he inserted transosseous nails through the calcaneus or tibia, enclosed them in plaster, and used them to distract the lower leg against a pelvic stop to lengthen the bone and soft tissues of the femoral or tibia/fibula regions after having created an osteotomy at the desired site of lengthening. He was able to straighten and lengthen affected limbs by 3 to 8 cm. His use of skeletal traction evolved specifically to avoid pressure necrosis and other complications that resulted from generating tensile forces through the soft tissues alone.

Cordivilla's early work was reinforced by Abbott [1] in a formal report in 1927. DO was substantially advanced by Gavriel Ilizarov [2], who in the 1950s at the Kurgan (USSR) Institute for Experimental Orthopaedics and Traumatology began to use skeletal distraction systematically across planned osteotomies to "regulate the genesis and growth of tissues in arms and legs through the application of tensile stress." He described a "universal apparatus" consisting of percutaneous transosseous pins proximal and distal to a planned osteotomy, with the pins fixed to ringlike external halos encircling the extremity. The rings were connected by extensible rods to enable precise, gradual elongation of the distance between the proximal and distal bone fragments [2]. The Ilizarov external fixation apparatus and its variants are to this day the most frequently employed mechanical devices for DO.

In 1972, Clifford Snyder and his colleagues [3] demonstrated that canine mandibles, previously foreshortened by surgical means, could be restored to normal length by DO. In 1989, using an external fixation device for DO, Karp et al [4] at New York University (NYU) confirmed Snyder's work and demonstrated in canine mandibles that distraction osteogenesis as previously applied to endochondral bone is also efficacious for producing membranous bone *de novo* in the craniofacial skeleton. Several years later, the NYU group reported clinical success using external fixation devices to lengthen mandibles in children [5]. Since then, numerous mechanical devices, both internal and external, have been employed on an everincreasing basis to correct bone and associated soft tissue deficiencies in the craniomaxillofacial region. This article focuses on the clinical experience, primarily in the mandible, of one of the authors (RCR), and projects future developments in the field of DO and MIG. We believe that elective DO for appearance and height enhancement will become commonplace. Already, and even with rather crude devices, the demand is growing for height enhancement, both in the United States and worldwide. \

With sophisticated devices and approaches that provide the doctor and patient with easily placed, user-friendly, easy-to-manage devices that reduce operative time, pain, and scarring, demand will increase, and new applications will emerge. One can even imagine remote monitoring and control of automated device-in-patient by the treating

surgeon. Clearly, DO is an important, proven tool that should reside in every reconstructive surgeon's arinamentarium.

Identifiers--KeyWord Plus(R): GRADUAL DISTRACTION

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20/5/5 (Item 2 from file: 34)

DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
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12517953 Genuine Article#: 775WE Number of References: 32

Title: Conventional and semi-open kyphoplasty

Author(s): Boszczyk BM (REPRINT) ; Bierschneider M; Hauck S; Vastmans J; Potulski M; Beisse R; Robert B; Jaksche H

Corporate Source: Berufsgenossenschaftliche Unfallklin Murnau, Abt Neurochirurg, Prof Kuntscher Str 8/D-82418 Murnau//Germany/ (REPRINT); Berufsgenossenschaftliche Unfallklin Murnau, Abt Neurochirurg, D-82418 Murnau//Germany/

Journal: ORTHOPADE, 2004, V33, N1 (JAN), P13-21

ISSN: 0085-4530 Publication date: 20040100

Publisher: SPRINGER-VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010 USA

Language: German Document Type: ARTICLE

Geographic Location: Germany

Journal Subject Category: ORTHOPEDICS

Abstract: Kyphoplasty is a young method which was developed for the minimally invasive augmentation of osteoporotic vertebral fractures. In contrast to vertebroplasty, the kyphoplasty technique allows an age-dependent fracture reduction through the **inflation** of a special **balloon** in the fractured **cancellous bone** of the vertebral body. The **cancellous bone** of the fracture zone is compressed by the balloon, so that a cavity remains in the vertebral body after removing the balloon, which is filled with highly viscous augmentation material. The reduced risk of serious complications, for example epidural leakage of augmentation material, justifies progressively expanding the indications for this technique to traumatic fractures with involvement of the posterior vertebral wall and neoplastic vertebral collapse due to osteolytic metastasis. Besides the indications for the conventional percutaneous approaches, the microsurgical interlaminary approach allows the use of kyphoplasty in more complex fractures involving compression of the neural structures.

Kyphoplasty induces swift pain relief and allows rapid mobilisation of patients due to the immediate stabilisation of the affected vertebral bodies. Apart from the operative intervention, the medical treatment of the primary disease and the rehabilitation of the individual patient should be optimised through an interdisciplinary approach.

Descriptors--Author Keywords: kyphoplasty ; spine ; minimally invasive surgery ; vertebral fracture

Identifiers--KeyWord Plus(R): VERTEBRAL COMPRESSION FRACTURES; PERCUTANEOUS

VERTEBROPLASTY; PULMONARY-EMBOLISM; THORACOLUMBAR SPINE; ACRYLIC CEMENT; COMPLICATIONS; PREVALENT

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MAGERL F, 1994, V3, P184, EUR SPINE J  
ONER FC, 2002, V27, P629, SPINE  
ONER FC, 1998, V80, P833, J BONE JOINT SURG B  
PAPOVANI B, 1999, V20, P375, AM J NEURORADIOL  
PEREZHIQUERAS A, 2002, V44, P950, NEURORADIOLOGY  
RATLIFF J, 2001, V26, PE300, SPINE  
ROSS PD, 1993, V3, P120, OSTEOPOROSIS INT  
SCROOP R, 2002, V23, P868, AM J NEURORADIOL  
TOZZI P, 2002, V74, P1706, ANN THORAC SURG  
WENGER M, 1999, V141, P625, ACTA NEUROCHIR  
WILSON DR, 2000, V25, P158, SPINE  
WONG W, 2000, V2, P117, J WOMENS IMAGING

20/5/7 (Item 1 from file: 73)

DIALOG(R) File 73:EMBASE

(c) 2005 Elsevier Science B.V. All rts. reserv.

12974048 EMBASE No: 2005033755

Restoring geometric and loading alignment of the thoracic spine with a vertebral compression fracture: Effects of balloon (bone tamp) inflation and spinal extension

Gaitanis I.N.; Carandang G.; Phillips F.M.; Magovern B.; Ghanayem A.J.;

Voronov L.I.; Havey R.M.; Zindrick M.R.; Hadjipavlou A.G.; Patwardhan A.G.

Dr. A.G. Patwardhan, Department of Veterans Affairs, E. Hines Jr.

Veterans Affairs Hosp., 5th Ave. and Roosevelt Rd., Hines, IL 60141

United States

AUTHOR EMAIL: apatwar@lumc.edu

Spine Journal ( SPINE J. ) (United States) 2005, 5/1 (45-54)

CODEN: SJPOA ISSN: 1529-9430

PUBLISHER ITEM IDENTIFIER: S152994300400484X

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 33

Background context: In patients with osteoporosis, changes in spinal alignment after a vertebral compression fracture (VCF) are believed to increase the risk of fracture of the adjacent vertebrae. The alterations in

spinal biomechanics as a result of osteoporotic VCF and the effects of deformity correction on the loads in the adjacent vertebral bodies are not fully understood. Purpose: To measure 1) the effect of thoracic VCFs on kyphosis (geometric alignment) and the shift of the physiologic compressive load path (loading alignment), 2) the effect of fracture reduction by balloon (bone tamp) inflation in restoring normal geometric and loading alignment and 3) the effect of spinal extension alone on fracture reduction and restoration of normal geometric and loading alignment. Study design/setting: A biomechanical study using six fresh human thoracic specimens, each consisting of three adjacent vertebrae with all soft tissues and bony structures intact. Methods: In order to reliably create fracture, cancellous bone in the middle vertebral body was disrupted by inflation of bone tamps. After removal of the bone tamps, the specimen was compressed using bilateral loading cables until a fracture was observed with anterior vertebral body height loss of  $>=25\%$ . Fracture reduction was performed under a compressive preload of 250 N first under the application of extension moments, and then using inflatable bone tamps. The vertebral body heights, kyphotic deformity of the fractured vertebra and adjacent segments and location of compressive load (cable) path in the fractured and adjacent vertebral bodies were measured on video-fluoroscopic images. Results: The VCF caused anterior wall height loss of  $37+/-15\%$ , middle-height loss of  $34+/-16\%$ , segmental kyphosis increase of  $14+/-7.0$  degrees and vertebral kyphosis increase of  $13+/-5.5$  degrees ( $p<.05$ ). The compressive load path shifted anteriorly by about 20% of anteroposterior end plate width in the fractured and adjacent vertebrae ( $p=.008$ ). Bone tamp inflation restored the anterior wall height to  $91+/-8.9\%$ , middle-height to  $91+/-14\%$  and segmental kyphosis to within  $5.6+/-5.9$  degrees of prefracture values. The compressive load path returned posteriorly relative to the postfracture location in all three vertebrae ( $p=.004$ ): the load path remained anterior to the prefracture location by about 9% to 11% of the anteroposterior end plate width. With application of extension moment ( $6.3+/-2.2$  Nm) until segmental kyphosis and compressive load path were fully restored, anterior vertebral body heights were improved to  $85+/-8.6\%$  of prefracture values. However, the middle vertebral body height was not restored and vertebral kyphotic deformity remained significantly larger than the prefracture values ( $p<.05$ ). Conclusions: The anterior shift of the compressive load path in vertebral bodies adjacent to VCF can induce additional flexion moments on these vertebrae. This eccentric loading may contribute to the increased risk of new fractures in osteoporotic vertebrae adjacent to an uncorrected VCF deformity. Bone tamp inflation under a physiologic preload significantly reduced the VCF deformity (anterior and middle vertebral body heights, segmental and vertebral kyphosis) and returned the compressive load path posteriorly, approaching the prefracture alignment. Application of extension moments also was effective in restoring the prefracture geometric and loading alignment of adjacent segments, but the middle height of the fractured vertebra and vertebral kyphotic deformity were not restored with spinal extension alone. (c) 2005 Elsevier Inc. All rights reserved.

DEVICE BRAND NAME/MANUFACTURER NAME: GE OEC 9800 Plus/GE Healthcare/United States

DEVICE MANUFACTURER NAMES: GE Healthcare/United States; kyphon/United States; Applied Geomechanics/United States; Advanced Mechanical Technology/United States

MEDICAL DESCRIPTORS:

\*vertebra fracture--surgery--su  
geometry; thoracic spine; fracture reduction; compression; biomechanics; weight bearing; kyphosis; statistical analysis; statistical significance; cadaver; fluoroscopy; device; human; male; female; clinical article; controlled study; aged; article; priority journal

SECTION HEADINGS:

027 Biophysics, Bioengineering and Medical Instrumentation  
033 Orthopedic Surgery

?

45/5/3 (Item 1 from file: 73)

DIALOG(R) File 73:EMBASE

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11976570 EMBASE No: 2003086787

**Kyphoplasty**

Ortiz A.O.; Zoarski G.H.; Beckerman M.

Dr. A.O. Ortiz, Department of Radiology, Winthrop-University Hospital, 259 First Street, Mineola, NY 11501 United States

Techniques in Vascular and Interventional Radiology ( TECH. VASC.

INTERVENT. RADIOL. ) (United States) 2002, 5/4 (239-249)

CODEN: TVIRF ISSN: 1089-2516

DOCUMENT TYPE: Journal ; Review

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 22

Kyphoplasty is a relatively new procedure that is indicated for the treatment of osteoporotic or pathologic compression fractures of the thoracic and/or lumbar spine. This minimally invasive procedure requires imaging guidance. Kyphoplasty entails the inflation of a balloon tamp, prior to the injection of opacified acrylic bone cement, within the compressed vertebral body in an attempt to restore vertebral body height and reduce the associated kyphotic deformity. Preliminary studies show that kyphoplasty, like vertebroplasty, provides significant pain relief in properly selected patients. Definitive demonstration of height restoration and kyphosis correction are still under investigation. Copyright 2002, Elsevier Science (USA). All rights reserved.

DEVICE BRAND NAME/MANUFACTURER NAME: **KyphX** Osteo Introducer System/Kyphon /United States

DEVICE MANUFACTURER NAMES: Kyphon/United States

DRUG DESCRIPTORS:

poly(methyl methacrylate); bone cement; midazolam; fentanyl; morphine; bupivacaine; lidocaine

MEDICAL DESCRIPTORS:

\*spine surgery; \*kyphosis--surgery--su; \*osteoporosis--surgery--su; \* fracture--surgery--su  
treatment indication; minimally invasive surgery; surgical technique; treatment contraindication; patient selection; guide wire; nuclear magnetic resonance imaging; premedication; treatment outcome; percutaneous vertebroplasty; intermethod comparison; blood vessel injury--complication--co; spine injury--complication--co; nerve injury--complication--co; bleeding--complication--co; human; review

MEDICAL TERMS (UNCONTROLLED): kyphoplasty

CAS REGISTRY NO.: 39320-98-4, 9008-29-1 (poly(methyl methacrylate)); 59467-70-8 (midazolam); 437-38-7 (fentanyl); 52-26-6, 57-27-2 (morphine); 18010-40-7, 2180-92-9, 55750-21-5 (bupivacaine); 137-58-6, 24847-67-4, 56934-02-2, 73-78-9 (lidocaine)

SECTION HEADINGS:

008 Neurology and Neurosurgery

024 Anesthesiology

027 Biophysics, Bioengineering and Medical Instrumentation

033 Orthopedic Surgery

037 Drug Literature Index

45/5/4 (Item 2 from file: 73)

DIALOG(R) File 73:EMBASE

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11802334 EMBASE No: 2002374370

**Kyphoplasty for the treatment of vertebral compression fractures**

Ahrar K.; Schomer D.F.; Wallace M.J.

Dr. K. Ahrar, Department of Vascular Radiology, Univ. Tex. M.D. Anderson Cancer Ctr., Box 325, 1515 Holcombe Boulevard, Houston, TX 77030-4009 United States

AUTHOR EMAIL: kahrar@di.mdacc.tmc.edu

Seminars in Interventional Radiology ( SEMIN. INTERVENT. RADIOL. ) ( United States) 2002, 19/3 (235-243)

CODEN: SIRAE ISSN: 0739-9529

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 21

Vertebral compression fractures are the most common fragility fractures, and they have significant medical and economical consequences. Conventional medical therapy for these fractures is aimed at treatment of symptoms with bed rest, analgesic medications, and bracing. Surgery is reserved for those patients with neurological deficits or compression of neural elements. Percutaneous vertebroplasty (PVP) has emerged as a minimally invasive treatment option to strengthen the fractured vertebra and to relieve associated pain. Percutaneous kyphoplasty (PKP) is a novel technique designed to relieve pain, strengthen the fractured vertebra, and restore the height of the compressed vertebra, thus minimizing the spinal deformity and its adverse sequelae. This article provides a brief introduction to this new technique and its current status in clinical practice.

DEVICE BRAND NAME/MANUFACTURER NAME: **KyphX** Inroducer Tool Kit/Kyphon/United States

DEVICE MANUFACTURER NAMES: Kyphon/United States

DRUG DESCRIPTORS:

poly(methyl methacrylate)

MEDICAL DESCRIPTORS:

\*vertebra fracture--therapy--th; \*percutaneous vertebroplasty  
interventional radiology; technique; patient selection; device; balloon catheter; human; article

CAS REGISTRY NO.: 39320-98-4, 9008-29-1 (poly(methyl methacrylate))

SECTION HEADINGS:

014 Radiology

027 Biophysics, Bioengineering and Medical Instrumentation

033 Orthopedic Surgery

?

Set	Items	Description
S1	479	KYPHOPLAST? OR VERTEBROPLAST? OR (KYPHO OR VERTEBRO) () (PLAST???)
S2	5898872	EXPAND? OR INFLAT? OR DISTEND? OR DISTENSION? OR OPEN???? - OR INSUFFLAT? OR DILAT????
S3	225882	BOLUS? OR BALLOON? OR TAMP? ? OR TAMPING
S4	1353	(CANCELL??? OR TRABECULA? OR SPONG? OR POROUS? OR LATTICE(-) WORK? OR MEDULLA?) (N) (BONE? ? OR SUBSTAN?)
S5	6813518	PLATFORM? OR SUPPORT? ? OR FOUNDATION? OR GUID??? OR BARRIER? OR BLOCK??? OR PLATE? ?
S6	1258680	ARM OR ARMS? OR WALL OR WALLS?
S7	10441688	PROJECT???? OR EXTEND??? OR EXTENSION? OR RESTRAIN??? OR CONSTRAIN??? OR OBSTRUCT??? OR DIRECT????
S8	443249	CATHETER? OR CANNULA? OR CANULA? OR SHEATH? OR SHUNT? OR TUBE OR TUBES OR CONDUIT? OR STENT? OR TUBING OR TUBULAR OR HOLLOW
S9	4470091	COMPACT? OR CONDENS? OR COMPRESS? OR PACK?? OR PACKING OR - PRESS???
S10	141	S1 AND S4
S11	11	S1(S)S4
S12	5	RD (unique items)
S13	10126	S2(5N)S3
S14	2	S13 (S) S4
S15	2	RD (unique items)
S16	3	S3(S)S4
S17	1	S16 NOT S14
S18	168030	BONE? ?
S19	65	S13 (S) S18
S20	63	S19 NOT (S11 OR S14)
S21	30	S20 (S) S1
S22	17	RD (unique items)
S23	34	S9(5N)S4
S24	2	S23 (S) S3
S25	558393	S5:S6 (7N) S7
S26	1265	S25(10N)S8
S27	0	S26 (S) S4
S28	7	S26(S)S18
S29	7	S28 NOT (S11 OR S14)
S30	4	RD (unique items)
S31	2261	S9(5N)S18
S32	7	S31 (S)S3
S33	7	RD (unique items)
S34	115	KYPHX
S35	57	S34 (S) S18
S36	48	S35 NOT (S11 OR S14 OR S21 OR S32)
S37	20	RD (unique items)
? show files		
File	16:Gale Group PROMT(R) 1990-2005/Jul 27	
	(c) 2005 The Gale Group	
File	160:Gale Group PROMT(R) 1972-1989	
	(c) 1999 The Gale Group	
File	148:Gale Group Trade & Industry DB 1976-2005/Jul 28	
	(c)2005 The Gale Group	
File	621:Gale Group New Prod.Annou. (R) 1985-2005/Jul 28	
	(c) 2005 The Gale Group	
File	441:ESPICOM Pharm&Med DEVICE NEWS 2005/Jun W4	
	(c) 2005 ESPICOM Bus.Intell.	
File	149:TGG Health&Wellness DB(SM) 1976-2005/Jul W3	
	(c) 2005 The Gale Group	

15/3,K/1 (Item 1 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
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10550016 Supplier Number: 103672658 (USE FORMAT 7 FOR FULLTEXT)

**Hospitalists represent a different focus in care for patients.**

Drake, Cynthia

The BBI Newsletter, v26, n6, p158(3)

June, 2003

Language: English Record Type: Fulltext

Document Type: Newsletter; Trade

Word Count: 1595

... occur when the bones in the spine weaken and collapse. Kyphon offers the KyphX Xpander **Inflatable** Bone **Tamp** as a new minimally invasive surgical tool for use in such spine fractures. To accomplish fracture reduction, the Xpander **Inflatable** Bone **tamp** is positioned through a 4.2 ...to create controlled cavities inside the vertebral body. Then a proprietary syringe is used to **inflate** the **balloon**, compacting **cancellous** **bone**.

Next, a set of small disposable surgical tools are used to create a 4 mm...

?

22/3,K/1 (Item 1 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

11584027 Supplier Number: 123667745 (USE FORMAT 7 FOR FULLTEXT)  
**Kyphon to Showcase Continued Balloon Kyphoplasty Product Innovation at NASS Annual Meeting; 100,000 Spinal Fractures Have Now Been Treated Using Balloon Kyphoplasty.**  
Business Wire, pNA  
Oct 27, 2004  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 438

Kyphon's ongoing efforts to build out and evolve the Balloon **Kyphoplasty** product suite have resulted in advancements in all of the company's major product categories. The company now has in full market release multiple sizes of its proprietary directional **inflatable bone tamps** (IBTs) -- KyphX(R) Elevate(TM) and KyphX(R) Exact(TM) IBTs -- which provide spine specialists...

...restoration and angular deformity correction in a broad range of spinal fracture morphologies during Balloon **Kyphoplasty** procedures. In addition, the company is launching three new Latitude(TM) Curette designs for scraping and scoring of **bone** in the spine.

This year's conference will be the first NASS annual meeting at...

22/3,K/2 (Item 2 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
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11545231 Supplier Number: 123345043 (USE FORMAT 7 FOR FULLTEXT)  
**Kyphon to Showcase Continued Balloon Kyphoplasty Product Innovation at CNS Annual Meeting; 100,000 Spinal Fractures Have Now Been Treated Using Balloon Kyphoplasty.**  
Business Wire, pNA  
Oct 18, 2004  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 666

Kyphon's ongoing efforts to build out and evolve the Balloon **Kyphoplasty** product suite have resulted in advancements in all of the company's major product categories. The company now has in full market release multiple sizes of its proprietary directional **inflatable bone tamps** (IBTs) -- KyphX(R) Elevate(TM) and KyphX(R) Exact(TM) IBTs -- which provide spine specialists...

...restoration and angular deformity correction in a broad range of spinal fracture morphologies during Balloon **Kyphoplasty** procedures. In addition, the company is launching three new Latitude(TM) Curette designs for scraping and scoring of **bone** in the spine.

This year's conference will be the first CNS annual meeting at...

22/3,K/3 (Item 3 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
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11259472 Supplier Number: 117930862 (USE FORMAT 7 FOR FULLTEXT)  
**Orthovita Completes Patient Enrollment in U.S. Pilot Clinical Study of  
CORTOSS in Vertebral Compression Fractures Using the Kyphoplasty  
Technique.**

Business Wire, p5480  
June 9, 2004  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1483

... percutaneously through the skin into the fractured vertebra using the vertebral augmentation procedure known as **kyphoplasty**. With **kyphoplasty**, an **inflatable bone tamp** is used to reduce the fracture and create a void into which CORTOSS can be...

**22/3,K/4 (Item 4 from file: 16)**  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

11247646 Supplier Number: 117608750 (USE FORMAT 7 FOR FULLTEXT)  
**Kyphon. (Product briefs) (Brief Article)**  
The BBI Newsletter, v27, n5, p153(1)  
May, 2004  
Language: English Record Type: Fulltext  
Article Type: Brief Article  
Document Type: Newsletter; Trade  
Word Count: 178

(USE FORMAT 7 FOR FULLTEXT)  
**TEXT:**  
...said it received a 510(k) clearance from the FDA to market KyphX HV-R **Bone Cement** for the fixation of osteoporosis-related pathological fractures of the vertebral body during **kyphoplasty**, noting that thousands of patients previously have had the procedure performed off-label, netting the company millions in revenue despite the handicap of having no official **bone cement** application approval. The finding of "substantial equivalence" for the product was based on clinical data supporting certain short- and long-term outcomes of **kyphoplasty**, and the new approval could expand the market for the procedure by enabling the company to market **kyphoplasty** directly to physicians. During the minimally invasive balloon **kyphoplasty** procedure, which is used to treat deformities brought on by vertebral body compression fractures that occur in osteoporosis, two KyphX Xpander **inflatable bone tamp balloons** are inserted into the **bone** via small incisions. After the **balloon** is **expanded**, **bone cement** is filled into the void left by the balloon, creating a permanent stabilization filler.

**22/3,K/5 (Item 5 from file: 16)**  
DIALOG(R) File 16:Gale Group PROMT(R)  
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10646953 Supplier Number: 106406961 (USE FORMAT 7 FOR FULLTEXT)  
**Orthovita Enrolls First Patient In U.S. Pilot Study of CORTOSS for Repair  
of Vertebral Compression Fractures Using Kyphoplasty Technique.**  
Business Wire, p5721  
August 8, 2003  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1563

... percutaneously through the skin into the fractured vertebra using the vertebral augmentation procedure known as **kyphoplasty**. With **kyphoplasty**, an **inflatable bone tamp** is used to reduce the fracture and create a void in which the biomaterial can...

**22/3,K/6 (Item 6 from file: 16)**  
DIALOG(R) File 16:Gale Group PROMT(R)  
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10550036 Supplier Number: 103672706 (USE FORMAT 7 FOR FULLTEXT)  
**Orthovita. (Product Briefs). (Brief Article)**

The BBI Newsletter, v26, n6, p175(1)  
June, 2003

Language: English Record Type: Fulltext  
Article Type: Brief Article  
Document Type: Newsletter; Trade  
Word Count: 142

(USE FORMAT 7 FOR FULLTEXT)  
TEXT:

...begin a second pilot human clinical study to evaluate the use of Cortoss Synthetic Cortical **Bone** Void Filler in the treatment of vertebral compression fractures (VCF) using the **kyphoplasty** treatment technique, in which an **inflatable bone tamp** is used to attempt to reduce the fracture and create a void into which the...

**22/3,K/7 (Item 7 from file: 16)**  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

10444450 Supplier Number: 100964963 (USE FORMAT 7 FOR FULLTEXT)  
**Orthovita Granted FDA IDE Approval To Begin U.S. CORTOSS--R-- Pilot Study In Vertebral Compression Fracture Repair Using the Kyphoplasty Technique.**

Business Wire, p5309  
May 1, 2003

Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1482

... in the treatment of vertebral compression fractures ("VCF") utilizing the **kyphoplasty** treatment technique.

In the **kyphoplasty** treatment technique employed in this study, an **inflatable bone tamp** is used to attempt to reduce the fracture and create a void in which

**22/3,K/8 (Item 8 from file: 16)**  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

08001997 Supplier Number: 64263355 (USE FORMAT 7 FOR FULLTEXT)  
**Emerging technology platforms bringing new energy to sector.**

STOMMEN, JIM  
The BBI Newsletter, v23, n3, p57  
March, 2000

Language: English Record Type: Fulltext  
Document Type: Newsletter; Trade

Word Count: 1250

... by osteoporosis, via what it calls the Spine system that facilitates a new procedure dubbed **Kyphoplasty**. The KyphX **Inflatable Bone Tamp**, already FDA-cleared, provides a minimally invasive way to treat such fractures through the use of **inflatable balloons** delivered inside compressed **bones** that, when deployed, move the outer **bone** and compress the inner **bone**, creating a cavity that can be filled with an as-yet-unspecified biomaterial. Upwards of...

**22/3,K/9 (Item 1 from file: 148)**  
DIALOG(R) File 148:Gale Group Trade & Industry DB  
(c)2005 The Gale Group. All rts. reserv.

0018132306 SUPPLIER NUMBER: 131499092 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Kyphoplasty well tolerated in patients with vertebral compression fractures. (Musculoskeletal Disorders)**  
Wendling, Patrice  
Family Practice News, 35, 7, 40(1)  
April 1, 2005  
ISSN: 0300-7073 LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 614 LINE COUNT: 00054

... the developers of kyphoplasty and is a paid consultant to Kyphon Inc., which manufacturers the **inflatable bone tamp**.  
Study participants were a mean age of 69.2 years and 209 were female. All...

**22/3,K/10 (Item 2 from file: 148)**  
DIALOG(R) File 148:Gale Group Trade & Industry DB  
(c)2005 The Gale Group. All rts. reserv.

0017291026 SUPPLIER NUMBER: 120461626 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Managing vertebral compression fractures and multiple myeloma in older patients: recent advances represent an opportunity for preserving function and quality of life. (Case report: clinical teaching)**  
Podichetty, Vinod K.; Mazanec, Daniel J.; Mompoint, Alex  
Journal of Musculoskeletal Medicine, 21, 7, 372(7)  
July, 2004  
ISSN: 0899-2517 LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 3945 LINE COUNT: 00343

... patients. (8)  
Percutaneous balloon kyphoplasty is a fairly new technique that involves introduction of an **inflatable bone tamp** into the fractured vertebral body for elevation of the end plates before fixation of the fracture with **bone** cement. This procedure appears to be associated with less risk of cement leakage and subsequent emboli than **vertebroplasty**, because the cement is introduced under lower pressure. In addition, **kyphoplasty** has the potential to restore vertebral body height; therefore, it reduces spinal kyphotic deformity and...

**22/3,K/11 (Item 3 from file: 148)**  
DIALOG(R) File 148:Gale Group Trade & Industry DB  
(c)2005 The Gale Group. All rts. reserv.

0017190106      SUPPLIER NUMBER: 116969830      (USE FORMAT 7 OR 9 FOR FULL TEXT)

**The Inflatable Spine. (Kyphoplasty)**

Herper, Matthew  
Forbes, 173, 12, 227  
June 7, 2004

ISSN: 0015-6914      LANGUAGE: English      RECORD TYPE: Fulltext  
WORD COUNT: 801      LINE COUNT: 00065

... injecting cement into the cavity created. The balloons were a success, strong enough to move **bone** . In an October 2003 study 29 patients had their painfully hunched backs unbent by 8...

...versions. Kyphon began marketing the device in 1999, after being cleared by the FDA. A **kyphoplasty** kit for a single vertebra costs \$3,500, six times more than some **vertebroplasty** kits, according to Shawn Fitz, an analyst at Stephens Inc. Eric Truumees, an orthopedist at...

**22/3,K/12 (Item 4 from file: 148)**  
DIALOG(R) File 148:Gale Group Trade & Industry DB  
(c) 2005 The Gale Group. All rts. reserv.

0016914334      SUPPLIER NUMBER: 115492038      (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Kyphoplasty relieves pain of osteoarthritis: improves function. (Clinical Rounds)**

Sullivan, Michele G.  
Family Practice News, 34, 6, 37(1)  
March 15, 2004  
ISSN: 0300-7073      LANGUAGE: English      RECORD TYPE: Fulltext  
WORD COUNT: 282      LINE COUNT: 00027

During kyphoplasty an **inflatable bone tamp** is placed inside a vertebral body under fluoroscopic guidance and then inflated to restore its ...

**22/3,K/13 (Item 1 from file: 441)**  
DIALOG(R) File 441:ESPICOM Pharm&Med DEVICE NEWS  
(c) 2005 ESPICOM Bus.Intell. All rts. reserv.

00072482 00076638 (USE FORMAT 7 OR 9 FOR FULLTEXT)

**Orthovita completes patient enrolment in pilot Cortoss study**

Orthopaedics Business  
11 June 2004 (20040611)  
RECORD TYPE: FULLTEXT      WORD COUNT: 175

COMPANY: Orthovita

(THIS IS THE FULLTEXT)

TEXT:

...percutaneously through the skin into the fractured vertebra using the vertebral augmentation procedure known as **kyphoplasty** . With **kyphoplasty** , an **inflatable bone tamp** is used to reduce the fracture and create a void into which Cortoss can be...

...improvement in function by restoring weight-bearing strength and stability to the fractured vertebra. The **bone** void filler will be administered using a prefilled, unit dose disposable cartridge. Cortoss is a...

22/3,K/14 (Item 2 from file: 441)  
DIALOG(R) File 441:ESPICOM Pharm&Med DEVICE NEWS  
(c) 2005 ESPICOM Bus.Intell. All rts. reserv.

00059642 00063513 (USE FORMAT 7 OR 9 FOR FULLTEXT)

**First patients enrolled in US study of Cortoss using kyphoplasty technique**

Medical Industry Week  
8 August 2003 (20030808)  
RECORD TYPE: FULLTEXT WORD COUNT: 473

COMPANY: Orthovita

(THIS IS THE FULLTEXT)

TEXT:

...will be injected percutaneously through the skin into the fractured vertebra using the vertebral augmentation ( **kyphoplasty** ). With **kyphoplasty** , an **inflatable bone tamp** is used to reduce the fracture and create a void in which the biomaterial can...

22/3,K/15 (Item 1 from file: 149)  
DIALOG(R) File 149:TGG Health&Wellness DB(SM)  
(c) 2005 The Gale Group. All rts. reserv.

02292241 SUPPLIER NUMBER: 111011822 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Kyphoplasty--minimally invasive vertebral compression fracture repair.(Home Study Program)**

Erickson, Kelley; Baker, Susan; Smith, Jason

AORN Journal, 78, 5, 765(12)

Nov,

2003

PUBLICATION FORMAT: Magazine/Journal ISSN: 0001-2092 LANGUAGE: English  
RECORD TYPE: Fulltext; Abstract TARGET AUDIENCE: Professional

WORD COUNT: 3362 LINE COUNT: 00296

... created in the vertebra, the surgeon deflates and removes the balloon. The surgeon places the **bone** filler device into the vertebral body under image guidance and injects approximately 2 mL to...

...to fill the cavity on each side (Figure 5). The scrub person modifies the acrylic **bone** cement for the **kyphoplasty** procedure by increasing the amount of contrast agent and changing the handling properties? After being injected, the cement-like material hardens quickly, stabilizing the **bone** . (9)

(FIGURE 5 OMITTED)

The circulating nurse and scrub person perform sponge and needle counts...

22/3, K/16 (Item 2 from file: 149)  
DIALOG(R) File 149:TGG Health&Wellness DB(SM)  
(c) 2005 The Gale Group. All rts. reserv.

02221389 SUPPLIER NUMBER: 104258900 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
)

**Kyphoplasty offers advantages over vertebroplasty: reduces angle of deformity. (Clinical Rounds). (osteoporotic vertebral compression fracture treatment)**

Norton, Patrice G.W.

Family Practice News, 33, 11, 13(1)

June 1,  
2003

PUBLICATION FORMAT: Magazine/Journal ISSN: 0300-7073 LANGUAGE: English

RECORD TYPE: Fulltext TARGET AUDIENCE: Professional

WORD COUNT: 897 LINE COUNT: 00079

... complication that can involve spillage into the spinal canal, venous system, and pulmonary circulation.

In **vertebroplasty**, a thin, liquid cement is injected under high pressure to fill the vertebral body. During **kyphoplasty**, an instrument called a **bone tamp** is **inflated** inside the fractured vertebral body to elevate the endplates and create a cavity. A thick...

...restricted because only one company Kyphon Inc. of Sunnyvale, Calif., produces the Kyph X Xpander **inflatable bone tamp**. Kyphon requires all physicians to take a 1-day hands-on course before they may...

22/3, K/17 (Item 3 from file: 149)  
DIALOG(R) File 149:TGG Health&Wellness DB(SM)  
(c) 2005 The Gale Group. All rts. reserv.

01966690 SUPPLIER NUMBER: 69651732 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Kyphoplasty: Preliminary Results.**

The Back Letter, 15, 12, 138

Dec,  
2000

PUBLICATION FORMAT: Newsletter ISSN: 0894-7376 LANGUAGE: English

RECORD TYPE: Fulltext TARGET AUDIENCE: Consumer; Professional

WORD COUNT: 769 LINE COUNT: 00067

... and reduce symptoms, kyphoplasty also attempts to restore lost vertebral height and sagittal alignment.

In **kyphoplasty**, a surgeon introduces a cannula into the vertebral body, and then inserts an **inflatable balloon tamp**. "Once **inflated**, the **balloon tamp** restores the vertebral body back towards its original height, while creating a cavity to be filled with **bone cement**," according to Isador H. Lieberman, MD, and colleagues. The space created by the balloon...  
?

37/3,K/1 (Item 1 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

11288745 Supplier Number: 118494382 (USE FORMAT 7 FOR FULLTEXT)  
**Minimally invasive spine surgery for osteoporosis, cancer patients grows. (Technology)**

Health Care Strategic Management, v22, n6, p11(3)  
June, 2004  
Language: English Record Type: Fulltext  
Document Type: Newsletter; Trade  
Word Count: 2109

... 75,000 and 100,000 spine fractures annually that are caused by cancer."

Kyphon introduces **KyphX** (R) **bone** cement  
Last month, Kyphon launched **KyphX** (R) HV-R(TM) **bone** cement.  
Kyphon said the **bone** cement is "the first product on the market specifically indicated for treating spinal fractures caused..."

...percutaneous vertebroplasty, balloon kyphoplasty and pedicle screw augmentation procedures. The UKMHRA has received reports of **bone** cement leaking during vertebroplasty and pedicle screw augmentation procedures leading to patient complications. The Alert...

...its alert. We believe the MHRA's Alert concerning balloon kyphoplasty pertains directly to our **KyphX** products, since our products are the only balloons used in Europe to perform kyphoplasty. The notification asks physicians to consider alternatives before performing procedures using **bone** cement in the spine, to use the manufacturer's instructions in preparing **bone** cements for use in the spine, and to take specific precautions before and during those...

37/3,K/2 (Item 2 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

11208189 Supplier Number: 116675531 (USE FORMAT 7 FOR FULLTEXT)  
**Kyphon Launches New Product for Balloon Kyphoplasty; Balloon Kyphoplasty Provides Significant Improvement in Quality of Life to Patients Suffering From Spinal Fractures Due to Osteoporosis.**

PR Newswire, pNA  
May 17, 2004  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1230

(USE FORMAT 7 FOR FULLTEXT)  
TEXT:  
...May 17 /PRNewswire/ -- Kyphon Inc., a global leader in minimally invasive spinal therapies, recently launched **KyphX** (R) HV-R(TM) **Bone** Cement, the first product on the market specifically indicated for treating spinal fractures caused by...

37/3,K/6 (Item 6 from file: 16)  
DIALOG(R) File 16:Gale Group PROMT(R)  
(c) 2005 The Gale Group. All rts. reserv.

10779239 Supplier Number: 109041334 (USE FORMAT 7 FOR FULLTEXT)

**Kyphon Broadens Product Suite For Minimally Invasive Fracture Reduction in the Spine.**

Business Wire, p6100

Oct 20, 2003

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 543

... 20, 2003

Kyphon Inc. (Nasdaq: KYPH) announced today that it will introduce four new products-- **KyphX** (R) Exact(TM) and **KyphX** (R) Elevate(TM) Inflatable **Bone** Tamps, **KyphX** (R) Latitude(TM) Curette and **KyphX** (R) Express(TM)--in conjunction with the Congress of Neurological Surgeons (CNS) annual meeting on...

...invasive spine surgery industry."

The following new products will be available at CNS and NASS:

-- **KyphX** (R) Elevate(TM) is a directional inflatable **bone** tamp (IBT) designed for preferential superior and inferior fracture reduction.

-- **KyphX**(R) Exact(TM) is...

**37/3, K/19 (Item 12 from file: 148)**

DIALOG(R) File 148:Gale Group Trade & Industry DB

(c) 2005 The Gale Group. All rts. reserv.

14694531 SUPPLIER NUMBER: 87560315

**Kyphon floats with orthopaedic balloon technology.**

Clinica, 1009, 12(1)

May 27, 2002

ISSN: 0144-7777 LANGUAGE: English RECORD TYPE: Abstract

...ABSTRACT: at more than \$17 in the firm's recent initial public offering. The firm's **KyphX** inflatable **bone** tamp can manage fractures involving crushed or collapsed **bone** .

?

Set	Items	Description
S1	17	AU=(LAYNE, R? OR LAYNE R?)
S2	39	AU=(SCRIBNER, R? OR SCRIBNER R?)
S3	5	AU=(RALPH, C? OR RALPH C?)
S4	2	S1 AND S2 AND S3
S5	21	S1:S3 AND (BONE OR VERTEBRA?)
S6	21	IDPAT (sorted in duplicate/non-duplicate order)
S7	21	IDPAT (primary/non-duplicate records only)
S8	19	S7 NOT S4

? show files

File 347:JAPIO Nov 1976-2005/Feb(Updated 050606)

(c) 2005 JPO & JAPIO

File 350:Derwent WPIX 1963-2005/UD,UM &UP=200546

(c) 2005 Thomson Derwent

Inventor  
Search

Foreign & Int'l  
Patents

4/5/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

014551628 \*\*Image available\*\*

WPI Acc No: 2002-372331/200240

XRPX Acc No: N02-290965

**Reducing fractured bone using fracture reduction cannula having internal axial bore and circumferential opening**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: LAYNE R W ; RALPH C R ; REILEY M A; SAND P M; SCRIBNER R M

Number of Countries: 096 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Aplicat No	Kind	Date	Week
WO 200234148	A2	20020502	WO 2001US45589	A	20011025	200240 B
US 20020099385	A1	20020725	US 2000243194	P	20001025	200254
			US 20011937	A	20011025	
AU 200225837	A	20020506	AU 200225837	A	20011025	200257
EP 1328203	A2	20030723	EP 2001988557	A	20011025	200350
			WO 2001US45589	A	20011025	
KR 2003068144	A	20030819	KR 2003705821	A	20030425	200382
JP 2004512087	W	20040422	WO 2001US45589	A	20011025	200428
			JP 2002537204	A	20011025	

Priority Applications (No Type Date): US 2000243194 P 20001025; US 20011937 A 20011025

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200234148 A2 E 49 A61B-017/58

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

US 20020099385 A1 A61B-017/58 Provisional application US 2000243194

AU 200225837 A A61B-017/58 Based on patent WO 200234148

EP 1328203 A2 E A61B-017/58 Based on patent WO 200234148

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2003068144 A A61B-017/58

JP 2004512087 W 72 A61B-017/58 Based on patent WO 200234148

Abstract (Basic): WO 200234148 A2

NOVELTY - The tool comprises a cannula with an internal axial bore with a circumferential opening in the side wall extending partially about the side wall and is elongated along the axis. The bore is solid between the distal terminus of the circumferential opening and the distal end of the cannula. An expandable structure is inserted through the bone into the cannula and expands through the circumferential opening into contact with cancellous bone forming a cavity. The cavity is filled with a bone filling material that is allowed to set.

USE - For treatment and correction of human or other animal bone conditions and is practically well suited for fractures of long bones such as the human distal radius.

ADVANTAGE - The bone is capable of bearing limited loads and the healing of the fractured bone is promoted while minimizing degradation of the adjacent joints.

DESCRIPTION OF DRAWING(S) - The drawing shows a section of the distal radius showing cancellous bone and cortical bone in a fractured

condition.

pp; 49 DwgNo 3/28

Title Terms: REDUCE; FRACTURE; BONE; FRACTURE; REDUCE; CANNULA; INTERNAL; AXIS; BORE; CIRCUMFERENCE; OPEN

Derwent Class: P31; P32

International Patent Class (Main): A61B-017/58

International Patent Class (Additional): A61B-017/16; A61B-017/72; A61F-002/42; A61F-002/44; A61F-002/46

File Segment: EngPI

4/5/2 (Item 2 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

014164444 \*\*Image available\*\*

WPI Acc No: 2001-648672/200174

XRPX Acc No: N01-484669

A method of directing the expansion of an expandable structure within a bone, particularly used for inserting medical balloons into human or animal bodies

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: LAYNE R W ; RALPH C R ; SCRIBNER R M ; HSIA A; ICO C A; SETO C L

Number of Countries: 095 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Current Application
WO 200176492	A1	20011018	WO 2001US11148	A	2001040	
AU 200153183	A	20011023	AU 200153183	A	2001040	
US 20020026195	A1	20020228	US 2000195207	P	200004	
			US 2001828470	A	2001040	
EP 1272113	A1	20030108	EP 2001926662	A	2001040	
			WO 2001US11148	A	2001040	
KR 2003011295	A	20030207	KR 2002713467	A	2002100	
CN 1433284	A	20030730	CN 2001810772	A	20010406	200365
JP 2003529438	W	20031007	JP 2001574016	A	20010406	200370
			WO 2001US11148	A	20010406	
AU 2001253183	A2	20011023	AU 2001253183	A	20010406	200427
NZ 521800	A	20040625	NZ 521800	A	20010406	200445
			WO 2001US11148	A	20010406	
US 20050090852	A1	20050428	US 2000195207	P	20000407	200530
			US 2001828470	A	20010406	
			US 2004848514	A	20040518	

Priority Applications (No Type Date): US 2000195207 P 20000407; US 2001828470 A 20010406; US 2004848514 A 20040518

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200176492 A1 E 55 A61B-017/58

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200153183 A A61B-017/58 Based on patent WO 200176492

US 20020026195 A1 A61F-002/30 Provisional application US 2000195207

EP 1272113 A1 E A61B-017/58 Based on patent WO 200176492

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2003011295 A A61B-017/58

CN 1433284 A A61B-017/58  
JP 2003529438 W 58 A61B-017/56 Based on patent WO 200176492  
AU 2001253183 A2 A61B-017/58 Based on patent WO 200176492  
NZ 521800 A A61B-017/58 Based on patent WO 200176492  
US 20050090852 A1 A61M-029/00 Provisional application US 2000195207

CIP of application US 2001828470

**Abstract (Basic):** WO 200176492 A1

**NOVELTY** - A method of directing the expansion of an expandable structure (310) within a bone comprises introducing such a structure into the bone, introducing a rigid surface adjacent to the structure, and then expanding the structure within the bone.

**DETAILED DESCRIPTION - INDEPENDENT CLAIMS** are also included for the following:

(a) a method of treating a weakened, fractured or diseased bone comprising positioning an insertion device (50) such that a platform extending from its distal end is positioned between the expandable device and a portion of the cancellous bone region (71);

(b) and a device for directing the expansion of the expandable structure.

**USE** - The method is particularly used with cannulas and needles for inserting medical balloons into human or animal bodies.

**ADVANTAGE** - The insertion device can flare at the tip to ease insertion and removal and reduce the risk of damage to the device during insertion, inflation and removal. The device allows controlled movement towards or away from a particular region. The device creates optimally placed cavities for repair, augmentation and/or treatment of fractured or diseased bone.

**DESCRIPTION OF DRAWING(S)** - The drawing shows a cannula inserted in a vertebral body with a spherical expandable structure expanding within the vertebral body.

vertebra; (41)  
insertion device; (50)  
cancellous bone; (71)  
expandable structure. (310)  
pp; 55 DwgNo 1/39

**Title Terms:** METHOD; DIRECT; EXPAND; EXPAND; STRUCTURE; BONE; INSERT; MEDICAL; BALLOON; HUMAN; ANIMAL; BODY

**Derwent Class:** P31; P32; P34

**International Patent Class (Main):** A61B-017/56; A61B-017/58; A61F-002/30; A61M-029/00

**International Patent Class (Additional):** A61B-001/32; A61B-017/00; A61B-017/34; A61B-017/68; A61F-002/46; A61M-031/00; A61M-037/00

**File Segment:** EngPI

?

8/5/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

017080277 \*\*Image available\*\*  
WPI Acc No: 2005-404602/200541  
XRPX Acc No: N05-328318

Facet joint prosthesis for treating spinal pathology, has artificial facet joint element connected to fixation element by polyaxially adjustable connection to allow rotation of artificial joint element with respect to fixation element

Patent Assignee: ARCHUS ORTHOPEDICS INC (ARCH-N)  
Inventor: REILEY M A; SCRIBNER R M; STINSON D T; TOKISH L J  
Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20050131406	A1	20050616	US 2003737705	A	20031215	200541 B

Priority Applications (No Type Date): US 2003737705 A 20031215

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20050131406	A1	27	A61B-017/58	

Abstract (Basic): US 20050131406 A1

NOVELTY - An artificial facet joint element (104) is connected to a fixation element (116) by a polyaxially adjustable connection (115) to allow rotation of the artificial joint element with respect to the fixation element around more than one axis.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a facet joint prosthesis installation.

USE - For treating spinal pathology.

ADVANTAGE - Enables easy attachment to spinal vertebrae.

Stabilizes and prevents unwanted movement of vertebrae.

DESCRIPTION OF DRAWING(S) - The figure shows the isometric view of a caudal prosthesis.

Support arm (102)

Artificial facet joint element (104)

Base (112)

Polyaxially adjustable connection (115)

Fixation element (116)

pp; 27 DwgNo 15/32

Title Terms: FACET; JOINT; PROSTHESIS; TREAT; SPINE; PATHOLOGICAL; ARTIFICIAL; FACET; JOINT; ELEMENT; CONNECT; FIX; ELEMENT; ADJUST; CONNECT; ALLOW; ROTATING; ARTIFICIAL; JOINT; ELEMENT; RESPECT; FIX; ELEMENT

Derwent Class: P31

International Patent Class (Main): A61B-017/58

File Segment: EngPI

8/5/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

016890415 \*\*Image available\*\*  
WPI Acc No: 2005-214699/200522  
XRPX Acc No: N05-177584

Mechanical cutting tool for creating void in interior body region has rod which is slid able within lumen of shaft assembly and tethered to multifaceted cutting tip used for contacting bone and coupled to shaft assembly

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: CANTU A R; EDIDIN A A; LAYNE R W ; PHILLIPS F M; REILEY M A; ROTHWELL D S; SCHOLTEN A; WAY B A

Number of Countries: 108 Number of Patents: 002

Patent Family:

Patent No.	Kind	Date	Applcat No	Kind	Date	Week
WO 200523085	A2	20050317	WO 2004US22950	A	20040716	200522 B
US 20050113838	A1	20050526	US 2003499934	P	20030903	200535
					US 2004892824	A 20040716

Priority Applications (No Type Date): US 2003499934 P 20030903; US 2004892824 A 20040716

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200523085 A2 E 62 A61B-000/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 20050113838 A1 A61B-017/16 Provisional application US 2003499934

Abstract (Basic): WO 200523085 A2

NOVELTY - The mechanical cutting tool (10) includes a shaft assembly (12) having a lumen. A multifaceted cutting tip (20) for contacting a **bone** is coupled to the shaft assembly. A rod, which is tethered to the tip, is slidable within the lumen of the shaft assembly.

USE - For creating void in interior body region e.g. **bone** for diagnostic or therapeutic application.

ADVANTAGE - Allows combination of cutting tool with one or more expandable void-creating structures to form a void of a desired size and configuration.

DESCRIPTION OF DRAWING(S) - The figure shows the perspective view of mechanical cutting tool showing pivoting movement of cutting tip.

Mechanical cutting tool (10)

Shaft assembly (12)

Shaft ends (14,16)

Handle (18)

Cutting tip (20)

Actuator (22)

pp; 62 DwgNo 1/48

Title Terms: MECHANICAL; CUT; TOOL; VOID; INTERIOR; BODY; REGION; ROD; SLIDE; LUMEN; SHAFT; ASSEMBLE; TETHER; MULTIFACETED; CUT; TIP; CONTACT; **BONE** ; COUPLE; SHAFT; ASSEMBLE

Derwent Class: P31

International Patent Class (Main): A61B-000/00; A61B-017/16

File Segment: EngPI

8/5/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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016741312 \*\*Image available\*\*

WPI Acc No: 2005-065609/200507

XRPX Acc No: N05-056839

Prosthesis for use on vertebra , has fixation mechanism adapted to

attach at least one artificial facet joint bearing element to the vertebra without penetrating the bone portion of vertebra  
Patent Assignee: ARCHUS ORTHOPEDICS INC (ARCH-N)  
Inventor: JONES L R; REILEY M A; SCRIBNER R M ; STINSON D; JONES L; REILEY M; SCRIBNER R  
Number of Countries: 108 Number of Patents: 002  
Patent Family:  
Patent No Kind Date Applcat No Kind Date Week  
US 20050010291 A1 20050113 US 2003615417 A 20030708 200507 B  
WO 200509301 A1 20050203 WO 2004US16774 A 20040524 200510

Priority Applications (No Type Date): US 2003615417 A 20030708

Patent Details:

Patent No	Kind	Ln	Pg	Main IPC	Filing Notes
US 20050010291	A1	21		A61F-002/44	
WO 200509301	A1	E		A61F-002/44	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ  
CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID  
IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ  
NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ  
UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR  
GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL  
SZ TR TZ UG ZM ZW

Abstract (Basic): US 20050010291 A1

NOVELTY - A fixation mechanism is adapted to attach at least one artificial facet joint bearing element (38,52) to the **vertebra** without penetrating the **bone** portion of the **vertebra**.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a cephalad facet joint implanting method.

USE - Used for replacing cephalad portion of natural facet joint on **vertebra** for treating spinal pathologies.

ADVANTAGE - Reduces pain being felt by the patient and improve stabilization of the joints by holding the **vertebrae** in fixed position.

DESCRIPTION OF DRAWING(S) - The figure is a bottom view of an artificial facet joint prosthesis.

Artificial facet joint bearing element (38,52)

Bearing surfaces (40,54)

Lower clamp portion (41)

pp; 21 DwgNo 11/20

Title Terms: PROSTHESIS; **VERTEBRA** ; FIX; MECHANISM; ADAPT; ATTACH; ONE; ARTIFICIAL; FACET; JOINT; BEARING; ELEMENT; **VERTEBRA** ; PENETRATE; **BONE** ; PORTION; **VERTEBRA**

Derwent Class: P32

International Patent Class (Main): A61F-002/44

File Segment: EngPI

8/5/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

016457156 \*\*Image available\*\*

WPI Acc No: 2004-615074/200459

Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-059975; 1999-371276; 2000-086828; 2003-209147; 2003-417635; 2003-697288; 2003-776174; 2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRPX Acc No: N04-486356

Human or animal bone e.g. medullary bone, treating method, involves providing structure with opposite ends spaced along axis of structure, where structure in wrapped condition by wrapping structure inwardly about axis

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BOUCHER R P; REILEY M A; SCRIBNER R M ; TALMADGE K D

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applcat No	Kind	Date	Week
US 20040167561	A1	20040826	US 9888459	A	19980601	200459 B
			US 99420529	A	19991019	
			US 2000595963	A	20000619	
			US 2004784392	A	20040223	

Priority Applications (No Type Date): US 2000595963 A 20000619; US 9888459 A 19980601; US 99420529 A 19991019; US 2004784392 A 20040223

Patent Details:

Patent No	Kind	Lat Pg	Main IPC	Filing Notes
US 20040167561	A1	21	A61F-002/28	CIP of application US 9888459
				CIP of application US 99420529
				Div ex application US 2000595963
				CIP of patent US 6607544
				Div ex patent US 6719773

Abstract (Basic): US 20040167561 A1

NOVELTY - The method involves providing a structure (56) with opposite ends spaced along the structure axis, where the structure is placed in a wrapped condition by wrapping the structure inwardly about an axis. The structure is inserted into **bone**, while in the wrapped condition. The structure is returned in the unwrapped condition inside **bone** and the structure in cancellous **bone** (32) is expanded.

USE - Used for treating **bone** (claimed) e.g. medullary **bone** or trabecular **bone**, in humans and animals.

ADVANTAGE - The structure is placed in a wrapped condition by wrapping the structure inwardly, thereby effectively reducing the outside diameter, thus reducing the profile during deployment and removal from the targeted tissue site.

DESCRIPTION OF DRAWING(S) - DESCRIPTION OF DRAWING - The drawing shows a coronal view of a **vertebral** body with an expandable structure of a tool shown in a fully deployed and expanded condition to compress cancellous **bone** and form a cavity.

**vertebral** body (26)  
Cancellous **bone** (32)  
Structure (56)  
Cannula (78)  
Interior cavity (80)  
pp; 21 DwgNo 12/19

Title Terms: HUMAN; ANIMAL; **BONE** ; MEDULLARY; **BONE** ; TREAT; METHOD; STRUCTURE; OPPOSED; END; SPACE; AXIS; STRUCTURE; STRUCTURE; WRAP; CONDITION; WRAP; STRUCTURE; INWARD; AXIS

Derwent Class: P32; P34

International Patent Class (Main): A61F-002/28

International Patent Class (Additional): A61M-029/00

File Segment: EngPI

8/5/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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016145369    \*\*Image available\*\*

WPI Acc No: 2004-303245/200428

Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-059975;  
1999-371276; 2000-086828; 2003-209147; 2003-417635; 2003-697288;  
2003-776174; 2003-831673; 2004-068737; 2004-090534; 2004-570775;  
2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRPX Acc No: N04-241359

**Cancellous bone e.g. tibia, treating tool for osteoporotic fixation, has detent mechanism to move structure from collapsed condition to wrapped condition, where structure expands outwardly from collapsed to expanded condition**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BOUCHER R P; REILEY M A; SCRIBNER R M ; TALMADGE K D

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6719773	B1	20040413	US 9888459	A	19980601	200428 B
			US 99420529	A	19991019	
			US 2000595963	A	20000619	

Priority Applications (No Type Date): US 2000595963 A 20000619; US 9888459 A 19980601; US 99420529 A 19991019

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6719773	B1	22	A61M-029/00	CIP of application US 9888459
				CIP of application US 99420529

Abstract (Basic): US 6719773 B1

NOVELTY - The tool (48) has a detent mechanism coupled to a structure (56) and operated in a direction to move the structure from a collapsed condition to a wrapped condition. The outer diameter of the structure decreases to form a passage via a cannula and is operated in another direction to return to the collapsed condition. The structure expands outwardly from collapsed to an expanded condition.

USE - Used for treating a cancellous bone e.g. tibia, femur, radius, humerus, vertebrae, calcaneus for fixation of fracture or osteoporotic and non-osteoporotic condition.

ADVANTAGE - The structure is expandable and can be contracted and/or wrapped to present a reduced profile during deployment and/or removal from a targeted tissue site.

DESCRIPTION OF DRAWING(S) - The drawing shows a plan view of a tool with expendable structure.

Catheter body (18)

Cap (24)

Tool (48)

Stylet (52)

Structure (56)

pp; 22 DwgNo 9/19

Title Terms: BONE ; TIBIA; TREAT; TOOL; FIX; DETENT; MECHANISM; MOVE; STRUCTURE; COLLAPSE; CONDITION; WRAP; CONDITION; STRUCTURE; EXPAND; OUTWARD; COLLAPSE; EXPAND; CONDITION

Derwent Class: P34

International Patent Class (Main): A61M-029/00

File Segment: EngPI

8/5/6    (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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015913216    \*\*Image available\*\*

WPI Acc No: 2004-071056/200407

Related WPI Acc No: 2001-328578

XRPX Acc No: N04-057182

**Facet joint prosthesis for vertebral body, has fixation region sized to accommodate adjustment of component on vertebral body and receiving fixation unit to fix component on or near pedicle**

Patent Assignee: ARCHUS ORTHOPEDICS INC (ARCH-N)

Inventor: DAVIDSON J; REILEY M A; SCRIBNER R M

Number of Countries: 099   Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 2003101350	A1	20031211	WO 2003US17094	A	20030530	200407 B
AU 2003238834	A1	20031219	AU 2003238834	A	20030530	200449

Priority Applications (No Type Date): US 2002158563 A 20020530

Patent Details:

Patent No	Kind	Lat	Pg	Main IPC	Filing Notes
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WO 2003101350 A1 E 68 A61F-002/44

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

AU 2003238834 A1                    A61F-002/44    Based on patent WO 2003101350

Abstract (Basic): WO 2003101350 A1

NOVELTY - The prosthesis (36, 38) has a component sized to be fixed to a **vertebral** body and an artificial facet joint structure that replaces a portion of a natural facet joint. A fixation region on the component receives a fixation unit (52) to fix the component to the body on or near a pedicle. The fixation region is sized to accommodate adjustment of the component on the **vertebral** body.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a prosthesis assembly  
(b) a method of replacing a portion of a natural facet joint on a **vertebral** body.

USE - Used for replacement of a natural facet joint with an artificial facet joint surface.

ADVANTAGE - The prosthesis provides for posterior-anterior adjustment and both prostheses permit lateral adjustment and adjustment to accommodate interpedicle distance and provide a pre-defined lordotic and pedicle entry angle, thereby restoring desired articulation or bony anatomy.

DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of a cephalad prosthesis in articulation with a caudal prosthesis.

Prosthesis (36, 38)

Artificial facet structures (40)

Chimney (42)

Vertical openings (50, 56)

Fixation units (52)

pp; 68 DwgNo 6/38

Title Terms: FACET; JOINT; PROSTHESIS; VERTEBRA ; BODY; FIX; REGION; SIZE; ACCOMMODATE; ADJUST; COMPONENT; VERTEBRA ; BODY; RECEIVE; FIX; UNIT; FIX ; COMPONENT

Derwent Class: P32

International Patent Class (Main): A61F-002/44  
File Segment: EngPI

8/5/7 (Item 7 from file: 350)

DIALOG(R) File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

015713974 \*\*Image available\*\*

WPI Acc No: 2003-776174/200373

Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-059975;  
1999-371276; 2000-086828; 2003-209147; 2003-417635; 2003-697288;  
2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775;  
2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRAM Acc No: C03-213529

XRPX Acc No: N03-621816

**Compacting device for compacting cancellous bone comprises wall made of flexible material, defining interior space and including expandable region**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BOUCHER R P; REILEY M A; SCRIBNER R M ; TALMADGE K D

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6607544	B1	20030819	US 94188224	A	19940126	200373 B
			US 97788786	A	19970123	
			US 9888459	A	19980601	
			US 99420529	A	19991019	

Priority Applications (No Type Date): US 99420529 A 19991019; US 94188224 A 19940126; US 97788786 A 19970123; US 9888459 A 19980601

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6607544	B1	16	A61B-017/56	Cont of application US 94188224 CIP of application US 97788786 CIP of application US 9888459 CIP of patent US 6235043

Abstract (Basic): US 6607544 B1

NOVELTY - A compacting device (I) has wall made of flexible material and defining interior space and including expandable region preformed with expanded shape outside **bone**. The expandable region has proximal and distal ends and further having first, second, and third expanded sections.

DETAILED DESCRIPTION - The compacting device (I) comprises wall made of flexible material, defines interior space, and includes expandable region preformed with expanded shape outside **bone**. The expandable region has proximal and distal ends and further having first, second, and third expanded sections. An interior cross-sectional area of the third section is less than that of the first or second sections. The three sections have first, second, and third average wall thickness, respectively.

An INDEPENDENT CLAIM is also included for a method for manipulating **bone** comprising deploying (I) into the **bone**.

USE - The device is used for compacting cancellous **bone** (claimed).

ADVANTAGE - The device is able to undergo controlled expansion and further distention in cancellous **bone**, without failure, while exhibiting resistance to surface abrasion and puncture when contacting cancellous **bone**.

DESCRIPTION OF DRAWING(S) - The figure is a coronal view of a

**vertebral** body.

Human lumbar **vertebra** (12)  
**Vertebral** body (26)  
Cortical **bone** (28)  
**Vertebral** arch (40)  
Spinous process (44)  
pp; 16 DwgNo 1/12

Title Terms: COMPACT; DEVICE; COMPACT; **BONE** ; COMPRISE; WALL; MADE; FLEXIBLE; MATERIAL; DEFINE; INTERIOR; SPACE; EXPAND; REGION

Derwent Class: A96; P31

International Patent Class (Main): A61B-017/56

File Segment: CPI; EngPI

8/5/8 (Item 8 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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015493065 \*\*Image available\*\*

WPI Acc No: 2003-555212/200352

XRPX Acc No: N03-440932

Bone treating device for patients suffering from osteoporosis, has lumen to retain guide wire, whose diameter in specific portion is smaller than enlarged outside diameter of tip component fixed to wire's distal end

Patent Assignee: KYPHON INC (KYPH-N); BOUCHER R P (BOUC-I); CANTU A R (CANT-I); FOLLMER L (FOLL-I); LAYNE R W (LAYN-I); SALOM N (SALO-I); SCRIBNER R M (SCRI-I); TALMADGE K D (TALM-I)

Inventor: BOUCHER R P; CANTU A R; FOLLMER L; **LAYNE R W**; SALOM N; SCRIBNER R M; TALMADGE K D

Number of Countries: 101 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030050644	A1	20030313	US 2001952014	A	20010911	200352 B
WO 200322165	A1	20030320	WO 2002US28802	A	20020910	200353
EP 1424947	A1	20040609	EP 2002757673	A	20020910	200438
			WO 2002US28802	A	20020910	
AU 2002323674	A1	20030324	AU 2002323674	A	20020910	200460
KR 2004041609	A	20040517	KR 2004703654	A	20040311	200460
JP 2005501649	W	20050120	WO 2002US28802	A	20020910	200508
			JP 2003526297	A	20020910	
CN 1553786	A	20041208	CN 2002817763	A	20020910	200517

Priority Applications (No Type Date): US 2001952014 A 20010911

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

US 20030050644 A1 22 A61B-017/58

WO 200322165 A1 E A61B-017/58

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW

EP 1424947 A1 E A61B-017/58 Based on patent WO 200322165

Designated States (Regional): AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR

AU 2002323674 A1 A61B-017/58 Based on patent WO 200322165

KR 2004041609 A A61B-017/68

JP 2005501649 W 71 A61B-017/56 Based on patent WO 200322165  
CN 1553786 A A61B-017/58

Abstract (Basic): US 20030050644 A1

NOVELTY - The distal end of a guide wire (52), is attached with a tip component (58) whose outside diameter is greater than that of distal end. A spinal needle assembly (50) consists of a lumen (56) to accommodate the guide wire. The diameter of lumen in specific portion is smaller than the enlarged outside diameter of the tip component.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) bone access assembly;
- (2) bone treating system;
- (3) bone treating method;
- (4) bone accessing method;
- (5) bone compacting method.

USE - For treating diseased or fractured bone of patients suffering from osteoporosis.

ADVANTAGE - The bone treating device performs manipulation of cortical bone and creates a cavity within the bone for forming a small, less invasive access path through soft tissue.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of spinal needle assembly.

- spinal needle assembly (50)
- guide wire (52)
- lumen (56)
- tip component (58)

pp; 22 DwgNo 4/20

Title Terms: BONE; TREAT; DEVICE; PATIENT; SUFFER; OSTEOPOROSIS; LUMEN; RETAIN; GUIDE; WIRE; DIAMETER; SPECIFIC; PORTION; SMALLER; ENLARGE; DIAMETER; TIP; COMPONENT; FIX; WIRE; DISTAL; END

Derwent Class: P31; P32; P34

International Patent Class (Main): A61B-017/56; A61B-017/58; A61B-017/68  
International Patent Class (Additional): A61B-017/16; A61B-017/34; A61F-002/46; A61M-037/00

File Segment: EngPI

8/5/9 (Item 9 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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015148620 \*\*Image available\*\*

WPI Acc No: 2003-209147/200320

Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-059975; 1999-371276; 2000-086828; 2003-417635; 2003-697288; 2003-776174; 2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775; 2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRAM Acc No: C03-053184

XRXP Acc No: N03-166691

Cancellous bone compacting device used in treatment of bones in humans and animals, has expandable wall preformed with normally expanded shape outside bone

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: SCRIBNER R M; TALMADGE K D

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020156482	A1	20021024	US 2001837350	A	20010418	200320 B

Priority Applications (No Type Date): US 2001837350 A 20010418

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
US 20020156482 A1 21 A61B-017/58

Abstract (Basic): US 20020156482 A1

NOVELTY - A device for compacting cancellous bone comprises a wall made from an elastomer material including a region preformed with a normally expanded shape outside bone .

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- (1) System for compacting cancellous board;
- (2) Device for insertion into a **vertebral** body;
- (3) Method for compacting cancellous **bone** ;
- (4) Method for treating a **vertebral** body; and
- (5) Method for manufacturing a cancellous **bone** compacting device.

USE - The device is used in the treatment of bones in humans and other animals for treating **bone** diseases, for treatment of human **vertebra** , and for diagnostic and therapeutic purposes in other areas of the body.

ADVANTAGE - The expandable wall improves insertion of solid materials in defined shapes and aids in the delivery of therapeutic substances. The wall is highly resistant to surface abrasion and tensile stresses. This allows the physician to meet targeted result using expandable wall.

DESCRIPTION OF DRAWING(S) - The figure shows a coronal view of the **vertebral** with a cancellous **bone** compaction device.

Expandable wall (56)  
pp; 21 DwgNo 8/16

Title Terms: **BONE** ; COMPACT; DEVICE; TREAT; **BONE** ; HUMAN; ANIMAL; EXPAND; WALL; PREFORM; NORMAL; EXPAND; SHAPE; **BONE**

Derwent Class: A96; B07; D22; P31

International Patent Class (Main): A61B-017/58

File Segment: CPI; EngPI

8/5/10 (Item 10 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014606466 \*\*Image available\*\*

WPI Acc No: 2002-427170/200245

Related WPI Acc No: 2001-308346

XRXPX Acc No: N02-335908

Hand held surgical instrument for accessing body interiors has composite handle engaging both trocar and cannula instruments

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: FERDINAND A E; REILEY M A; REO M; SCRIBNER R M ; REO M L

Number of Countries: 096 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200241796	A2	20020530	WO 2001US46006	A	20011023	200245	B
AU 200239469	A	20020603	AU 200239469	A	20011023	200263	
US 6575919	B1	20030610	US 99421635	A	19991019	200340	
			US 2000695566	A	20001024		
EP 1328201	A2	20030723	EP 2001987231	A	20011023	200350	
			WO 2001US46006	A	20011023		
US 20030191414	A1	20031009	US 99421635	A	19991019	200367	
			US 2000695566	A	20001024		
			US 2003431681	A	20030508		

KR 2003068141	A	20030819	KR 2003705729	A	20030424	200382
JP 2004513741	W	20040513	WO 2001US46006	A	20011023	200435
			JP 2002543980	A	20011023	

Priority Applications (No Type Date): US 2000695566 A 20001024; US 99421635 A 19991019; US 2003431681 A 20030508

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200241796 A2 E 52 A61B-017/34

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200239469 A A61B-017/34 Based on patent WO 200241796

US 6575919 B1 A61P-010/00 CIP of application US 99421635

EP 1328201 A2 E A61B-017/34 Based on patent WO 200241796

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

US 20030191414 A1 A61B-017/32 CIP of application US 99421635

Div ex application US 2000695566

Div ex patent US 6575919

KR 2003068141 A A61B-017/34

JP 2004513741 W 77 A61B-017/34 Based on patent WO 200241796

Abstract (Basic): WO 200241796 A2

NOVELTY - A trocar (20) and a cannula (40) are engaged together, forming a composite instrument. The handles (22, 42) for both instruments are combined together forming a composite handle (12), which includes a latch to resist disengagement of the two instruments. The composite handle transmits both longitudinal and rotational force to the instruments.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of accessing bone using the tool.

USE - A surgical instrument for accessing interior body regions, e.g. for the treatment of vertebral bodies.

ADVANTAGE - Reliable deployment through both soft and hard tissue, improving the therapeutic or diagnosis. Increased mechanical advantage of both torsional and longitudinal loads. Only one instrument is required during the surgical procedure. The surgeon is thus less distracted and more efficient in operation.

DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of the surgical instrument.

Composite handle (12)

Trocar (20)

Cannula (40)

Instrument handles (22, 42)

pp; 52 DwgNo 1/24

Title Terms: HAND; HELD; SURGICAL; INSTRUMENT; ACCESS; BODY; INTERIOR; COMPOSITE; HANDLE; ENGAGE; TROCAR; CANNULA; INSTRUMENT

Derwent Class: P31

International Patent Class (Main): A61B-017/32; A61B-017/34; A61P-010/00

International Patent Class (Additional): A61B-010/00

File Segment: EngPI

8/5/11 (Item 11 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014448721 \*\*Image available\*\*

WPI Acc No: 2002-269424/200231

Related WPI Acc No: 2000-237393; 2002-025876; 2002-098189

XRPX Acc No: N02-209643

**System for vertebral bodies treatment comprises filler instrument with material displacing plungers**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BOUCHER R M; REILEY M A; REO M M; SAND P M; SCRIBNER R M; SCRIBNER R N; BOUCHER R P; REO M L

Number of Countries: 095 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200217801	A2	20020307	WO 2001US22145	A	20010713	200231 B
AU 200177885	A	20020313	AU 200177885	A	20010713	200249
US 20020099384	A1	20020725	US 98134323	A	19980814	200254
			US 2000218237	P	20000714	
			US 2001905170	A	20010713	
EP 1303236	A2	20030423	EP 2001955830	A	20010713	200329
			WO 2001US22145	A	20010713	
KR 2003029621	A	20030414	KR 2003700591	A	20030114	200353
US 6641587	B2	20031104	US 98134323	A	19980814	200374
			US 2000218237	P	20000714	
			US 2001905170	A	20010713	
CN 1441655	A	20030910	CN 2001812817	A	20010713	200380
JP 2004507312	W	20040311	WO 2001US22145	A	20010713	200419
			JP 2002522779	A	20010713	
US 20040049203	A1	20040311	US 98134323	A	19980814	200419
			US 2000597646	A	20000620	
			US 2000218237	P	20000714	
			US 2001905170	A	20010713	
			US 2003640790	A	20030814	

Priority Applications (No Type Date): US 2000218237 P 20000714; US 98134323 A 19980814; US 2001905170 A 20010713; US 2000597646 A 20000620; US 2003640790 A 20030814

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200217801 A2 E 56 A61B-017/58

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200177885 A A61B-017/58 Based on patent WO 200217801

US 20020099384 A1 A61B-017/60 CIP of application US 98134323

Provisional application US 2000218237  
CIP of patent US 6241734

EP 1303236 A2 E A61F-002/46 Based on patent WO 200217801

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2003029621 A A61M-031/00

US 6641587 B2 A61B-017/00 CIP of application US 98134323

Provisional application US 2000218237  
CIP of patent US 6241734

CN 1441655 A A61F-002/46

JP 2004507312 W 79 A61B-017/56 Based on patent WO 200217801

US 20040049203 A1 A61F-002/00 CIP of application US 98134323

CIP of application US 2000597646

Provisional application US 2000218237

Div ex application US 2001905170

Abstract (Basic): WO 200217801 A2

NOVELTY - The system comprises a filler instrument, and a first and second plungers. The filler instrument comprises interconnected first and second chambers with different cross sectional areas. The first chamber has an inlet for receiving a material into the filler instrument and the second chamber has an outlet for discharging the material from the instrument. The first plunger is sized to pass through the first chamber and not the second chamber. The second plunger is sized to pass through the interior bore of the first plunger and into the second chamber.

USE - For treatment of **bone** conditions in humans and other animals.

ADVANTAGE - A greater control over placement of cement and other flowable liqs. into **bone** is achieved.

DESCRIPTION OF DRAWING(S) - The drawing shows a lateral view of a human spinal column.

pp; 56 DwgNo 1/19

Title Terms: SYSTEM; **VERTEBRA** ; BODY; TREAT; COMPRISE; FILL; INSTRUMENT; MATERIAL; DISPLACE; PLUNGE

Derwent Class: P31; P32; P34

International Patent Class (Main): A61B-017/00; A61B-017/56; A61B-017/58; A61B-017/60; A61F-002/00; A61F-002/46; A61M-031/00

International Patent Class (Additional): A61M-005/19

File Segment: EngPI

8/5/12 (Item 12 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014277487 \*\*Image available\*\*

WPI Acc No: 2002-098189/200213

Related WPI Acc No: 2000-237393; 2002-025876; 2002-269424

XRPX Acc No: N02-072536

- System for treating at least two vertebral bodies in a spinal column includes two tool assemblies that concurrently treat interior regions of two vertebral bodies, including compaction of cancellous bone

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BOUCHER R; REILEY M A; REO M L; SCRIBNER R M ; BOUCHER R P

Number of Countries: 095 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200197721	A2	20011227	WO 2001US19700	A	20010620	200213 B
AU 200169954	A	20020102	AU 200169954	A	20010620	200230
EP 1294323	A2	20030326	EP 2001948520	A	20010620	200323
			WO 2001US19700	A	20010620	
KR 2003018004	A	20030304	KR 2002717447	A	20021220	200345
US 20030130664	A1	20030710	US 98134323	A	19980814	200347
			US 2000597646	A	20000620	
			US 2003346618	A	20030117	
JP 2003535644	W	20031202	WO 2001US19700	A	20010620	200382
			JP 2002503199	A	20010620	
CN 1447671	A	20031008	CN 2001814386	A	20010620	200403
US 6716216	B1	20040406	US 98134323	A	19980814	200425
			US 2000597646	A	20000620	
AU 2001269954	A2	20020102	AU 2001269954	A	20010620	200433
US 20040210231	A1	20041021	US 98134323	A	19980814	200470

US 2000597646 A 20000620  
US 2003346618 A 20030117  
US 2004842076 A 20040510

Priority Applications (No Type Date): US 2000597646 A 20000620; US 98134323 A 19980814; US 2003346618 A 20030117; US 2004842076 A 20040510

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200197721 A2 E 103 A61F-002/46

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200169954 A Based on patent WO 200197721

EP 1294323 A2 E A61F-002/46 Based on patent WO 200197721

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2003018004 A A61F-002/46

US 20030130664 A1 A61F-005/00 CIP of application US 98134323  
Div ex application US 2000597646

CIP of patent US 6241734

Based on patent WO 200197721

JP 2003535644 W 106 A61B-017/56 Based on patent WO 200197721

CN 1447671 A A61F-002/46

US 6716216 B1 A61B-017/156 CIP of application US 98134323

CIP of patent US 6241734

AU 2001269954 A2 A61F-002/46 Based on patent WO 200197721

US 20040210231 A1 A61B-017/60 CIP of application US 98134323

Div ex application US 2000597646

Div ex application US 2003346618

CIP of patent US 6241734

Div ex patent US 6716216

Abstract (Basic): WO 200197721 A2

NOVELTY - The system includes first and second tool assemblies operable to treat an interior region of respective first and second **vertebral** bodies in the spinal column. The tool assemblies are operated to treat the first and second **vertebral** bodies, at least for a portion of time, concurrently.

DETAILED DESCRIPTION - At least one of the tools assemblies includes a device to compact cancellous **bone** in a **vertebral** body. The device includes an expandable structure (56) to form a cavity in the cancellous **bone**. At least one tool has a device to apply a force within the cancellous **bone** to move cortical **bone**, and a device to convey material into a **vertebral** body e.g. under pump or syringe pressure. An INDEPENDENT CLAIM is included for an assembly for treating **bone**, having a cortical **bone** cutting element carried on a support body to form an opening in the **bone**, and an expandable structure also carried on the support body and adapted to be inserted through the opening and expanded to form a cavity in cancellous **bone**.

USE - For treating at least two **vertebral** bodies in a spinal column, e.g. for treatment of scoliosis, or for use with other bones such as the radius, humerus, femur, tibia and calcaneus, e.g. for fixation of fractures and other osteoporotic and non-osteoporotic conditions in human and animal bones.

DESCRIPTION OF DRAWING(S) - The drawings show a plan view of the tool and an enlarged side view of the expandable structure carried by the tool for compressing cancellous **bone**.

compression fracture treatment tool (48)

catheter tube (50)  
proximal/distal ends (52, 54)  
expandable structure (56)  
lumen (80)  
interior tube (104)  
interior lumen (106)  
stylet (108)  
pp; 103 DwgNo 4, 5/33

Title Terms: SYSTEM; TREAT; TWO; VERTEBRA; BODY; SPINE; COLUMN; TWO; TOOL;  
; ASSEMBLE; CONCURRENT; TREAT; INTERIOR; REGION; TWO; VERTEBRA; BODY;  
COMPACT; BONE

Derwent Class: P31; P32

International Patent Class (Main): A61B-017/156; A61B-017/56; A61B-017/60;  
A61F-002/46; A61F-005/00

File Segment: EngPI

8/5/13 (Item 13 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014254939 \*\*Image available\*\*

WPI Acc No: 2002-075639/200210

Related WPI Acc No: 1999-180711

XRXPX Acc No: N02-055767

**Setting fluid injector for bones has tubular casing with dispensing  
opening and screw operated piston to discharge cement into bone**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: REILEY M A; REO M L; SAND P M; SCHOLTEN A; SCRIBNER R M

Number of Countries: 095 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200200143	A1	20020103	WO 2001US20215	A	20010627	200210 B
US 20020049448	A1	20020425	US 2000496987	A	20000202	200233
			US 2000214666	P	20000627	
			US 2001893298	A	20010627	
AU 200171440	A	20020108	AU 200171440	A	20010627	200235
EP 1294324	A1	20030326	EP 2001950451	A	20010627	200323
			WO 2001US20215	A	20010627	
KR 2003020314	A	20030308	KR 2002717900	A	20021227	200345
CN 1438860	A	20030827	CN 2001811897	A	20010627	200375
US 6645213	B2	20031111	US 97910809	A	19970813	200382
			US 2000496987	A	20000202	
			US 2000214666	P	20000627	
			US 2001893298	A	20010627	
JP 2004500963	W	20040115	WO 2001US20215	A	20010627	200410
			JP 2002504928	A	20010627	
US 20040024409	A1	20040205	US 2000496987	A	20000202	200411
			US 2000214666	P	20000627	
			US 2001893298	A	20010627	
			US 2003630519	A	20030730	

Priority Applications (No Type Date): US 2000214666 P 20000627; US  
2000496987 A 20000202; US 2001893298 A 20010627; US 97910809 A 19970813;  
US 2003630519 A 20030730

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
WO 200200143 A1 E 51 A61F-002/46

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA  
CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP  
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT

RO RU SD SE SG SI SK SL TJ TM TT TZ UA UG US UZ VN YU ZA ZW  
 Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
 IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW  
 US 20020049448 A1 A61B-017/56 CIP of application US 2000496987  
 Provisional application US 2000214666  
 AU 200171440 A A61F-002/46 Based on patent WO 200200143  
 EP 1294324 A1 E A61F-002/46 Based on patent WO 200200143  
 Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT  
 LI LT LU LV MC MK NL PT RO SE SI TR  
 KR 2003020314 A A61F-002/46  
 CN 1438860 A A61F-002/46  
 US 6645213 B2 A61B-017/58 Div ex application US 97910809  
 CIP of application US 2000496987  
 Provisional application US 2000214666  
 Div ex patent US 6048346  
 JP 2004500963 W 119 A61B-017/56 Based on patent WO 200200143  
 US 20040024409 A1 A61B-017/58 CIP of application US 2000496987  
 Provisional application US 2000214666  
 Div ex application US 2001893298  
 Div ex patent US 6645213

Abstract (Basic): WO 200200143 A1

NOVELTY - The setting fluid injector (302) for treatment of bones has a tubular casing with a dispensing opening at one end connected to the bore. The casing contains a plunger (308) which can move longitudinally. A screw thread attached to the plunger causes it to advance or retract by rotation of the screw. The screw (320) can have a control knob (316) to drive the screw when the knob is rotated a set amount.

USE - For injecting **bone** cement into fractured or diseased bones

ADVANTAGE - Allows greater control over placement of cement

DESCRIPTION OF DRAWING(S) - Drawing shows cross-section of injector

Injector (302)

Plunger (308)

Control knob (316)

Screw (320)

pp; 51 DwgNo 26/27

Title Terms: SET; FLUID; INJECTOR; **BONE**; TUBE; CASING; DISPENSE; OPEN; SCREW; OPERATE; PISTON; DISCHARGE; CEMENT; **BONE**

Derwent Class: P31; P32; P34

International Patent Class (Main): A61B-017/56; A61B-017/58; A61F-002/46

International Patent Class (Additional): A61F-002/28; A61M-003/00; A61M-005/145

File Segment: EngPI

8/5/14 (Item 14 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014205179 \*\*Image available\*\*

WPI Acc No: 2002-025876/200203

Related WPI Acc No: 2000-237393; 2002-098189; 2002-269424

XRAM Acc No: C02-007207

XRXPX Acc No: N02-020011

Treatment and prevention of vertebral compression fracture involves inserting cavity-forming device into cancellous bone, creating cavity and barrier region of compressed cancellous bone, and filling the cavity with filler

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BASISTA J J; BOUCHER R P; FOLLMER M; LAYNE R W ; OSORIO R A;  
TALMADGE K D

Number of Countries: 095 Number of Patents: 012

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200176514	A2	20011018	WO 2001US11456	A	20010405	200203 B
AU 200153267	A	20011023	AU 200153267	A	20010405	200213
US 20020161373	A1	20021031	US 2000194685	P	20000405	200274
			US 2001827260	A	20010405	
EP 1272131	A2	20030108	EP 2001926753	A	20010405	200311
			WO 2001US11456	A	20010405	
KR 2002091179	A	20021205	KR 2002713399	A	20021005	200324
CN 1427700	A	20030702	CN 2001809097	A	20010405	200361
JP 2003530151	W	20031014	JP 2001574036	A	20010405	200368
			WO 2001US11456	A	20010405	
US 20030220648	A1	20031127	US 2000194685	P	20000405	200378
			US 2001827260	A	20010405	
			US 2003420206	A	20030422	
US 20030233096	A1	20031218	US 2000194685	P	20000405	200401
			US 2001827260	A	20010405	
			US 2003397049	A	20030325	
US 6726691	B2	20040427	US 98134323	A	19980814	200429
			US 2000194685	P	20000405	
			US 2001827260	A	20010405	
AU 2001253267	A2	20011023	AU 2001253267	A	20010405	200433
US 20040167562	A1	20040826	US 98134323	A	19980814	200457
			US 2000194685	P	20000405	
			US 2001827260	A	20010405	
			US 2004783723	A	20040220	

Priority Applications (No Type Date): US 2000194685 P 20000405; US 2001827260 A 20010405; US 2003420206 A 20030422; US 2003397049 A 20030325 ; US 98134323 A 19980814; US 2004783723 A 20040220

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200176514 A2 E 60 A61F-002/44

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200153267 A Based on patent WO 200176514

US 20020161373 A1 A61F-005/00 Provisional application US 2000194685

EP 1272131 A2 E A61F-002/46 Based on patent WO 200176514

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2002091179 A A61F-002/44

CN 1427700 A A61F-002/46

JP 2003530151 W 60 A61B-017/56 Based on patent WO 200176514

US 20030220648 A1 A61F-005/00 Provisional application US 2000194685

US 20030233096 A1 A61F-005/00 Div ex application US 2001827260  
Provisional application US 2000194685

US 6726691 B2 A61B-017/58 CIP of application US 2001827260  
CIP of application US 98134323

Provisional application US 2000194685

CIP of patent US 6241734

AU 2001253267 A2 A61F-002/44 Based on patent WO 200176514

US 20040167562 A1

A61M-029/00 CIP of application US 98134323  
Provisional application US 2000194685  
Div ex application US 2001827260  
CIP of patent US 6241734  
Div ex patent US 6726691

Abstract (Basic): WO 200176514 A2

NOVELTY - A **vertebral** compression fracture is treated or prevented by inserting an insertion device into a **vertebral** body; inserting a cavity-forming device through the insertion device into a cancellous **bone** (115) in the **vertebral** body (105); displacing cancellous **bone** to create a cavity (170) and a barrier region of compressed cancellous **bone**; and filling the cavity with a filler (180).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a balloon catheter comprising a lumen within the tube, an expandable material, and an opening communicating with the lumen.

USE - For treating, i.e. repairing, reinforcing, and/or treating fractured and/or diseased **bone**.

ADVANTAGE - The method obviates the need for high pressure injection of **bone** filler, thus reducing the possibilities of cement leakage and/or extravazation outside of the **bone**. The creation of flow paths permits greater control in the placement of the **bone** filler material within the **vertebral** body.

DESCRIPTION OF DRAWING(S) - The figure is a lateral view of a lumbar **vertebra**.

**Vertebral** body (105)  
Cancellous **bone** (115)  
Cavity (170)  
Filler (180)

pp; 60 DwgNo 8A/20

Title Terms: TREAT; PREVENT; **VERTEBRA**; COMPRESS; FRACTURE; INSERT; CAVITY; FORMING; DEVICE; **BONE**; CAVITY; BARRIER; REGION; COMPRESS; **BONE**; FILL; CAVITY; FILL

Derwent Class: A96; B07; D22; P31; P32; P34

International Patent Class (Main): A61B-017/56; A61B-017/58; A61F-002/44; A61F-002/46; A61F-005/00; A61M-029/00

International Patent Class (Additional): A61L-027/00; A61L-027/56; A61M-025/00; A61M-025/10

File Segment: CPI; EngPI

8/5/15 (Item 15 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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013065521 \*\*Image available\*\*

WPI Acc No: 2000-237393/200020

Related WPI Acc No: 2002-025876; 2002-098189; 2002-269424

XRXPX Acc No: N00-178083

Tool set for placing material into bone comprises sets to provide cannula to bone, set to create cavity and set to fill cavity with material

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: BOUCHER R; REILEY M A; REO M L; SCRIBNER R M

Number of Countries: 084 Number of Patents: 015

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200009024	A1	20000224	WO 99US16289	A	19990726	200020 B
AU 9952172	A	20000306	AU 9952172	A	19990726	200030

NO 200100723	A	20010323	WO 99US16289	A	19990726	200131
			NO 2001723	A	20010212	
EP 1104260	A1	20010606	EP 99937310	A	19990726	200133
			WO 99US16289	A	19990726	
US 6241734	B1	20010605	US 98134323	A	19980814	200133
US 20010034527	A1	20011025	US 98134323	A	19980814	200170
			US 2001804107	A	20010312	
KR 2001099620	A	20011109	KR 2001701940	A	20010214	200229
JP 2002522148	W	20020723	WO 99US16289	A	19990726	200263
			JP 2000564531	A	19990726	
AU 759710	B	20030417	AU 9952172	A	19990726	200333
NZ 509696	A	20030429	NZ 509696	A	19990726	200334
			WO 99US16289	A	19990726	
US 6613054	B2	20030902	US 98134323	A	19980814	200359
			US 2001804107	A	20010312	
US 20040010260	A1	20040115	US 98134323	A	19980814	200406
			US 2001804107	A	20010312	
			US 2003617976	A	20030711	
AU 2003213545	A1	20030814	AU 9952172	A	19990726	200420 N
			AU 2003213545	A	20030717	
EP 1459689	A2	20040922	EP 99937310	A	19990726	200462
			EP 200476440	A	19990726	
AU 2003213545	B2	20050616	AU 9952172	A	19990726	200545
			AU 2003213545	A	20030717	

Priority Applications (No Type Date): US 98134323 A 19980814; US 2001804107 A 20010312; US 2003617976 A 20030711; AU 2003213545 A 20030717

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200009024	A1	E	73	A61B-017/58	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU 9952172	A	Based on patent WO 200009024
NO 200100723	A	A61B-000/00

EP 1104260	A1	E	A61B-017/58	Based on patent WO 200009024
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Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

US 6241734	B1	A61B-017/58
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US 20010034527	A1	A61M-005/178	Div ex application US 98134323
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Div ex patent US 6241734

KR 2001099620	A	A61B-017/58
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JP 2002522148	W	82 A61B-017/56	Based on patent WO 200009024
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AU 759710	B	A61B-017/58	Previous Publ. patent AU 9952172
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Based on patent WO 200009024

NZ 509696	A	A61B-017/58
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Div in patent NZ 524487

Based on patent WO 200009024

US 6613054	B2	A61B-017/58
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Div ex application US 98134323

Div ex patent US 6241734

US 20040010260	A1	A61B-017/58
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Div ex application US 98134323
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Div ex application US 2001804107

Div ex patent US 6241734

Div ex patent US 6613054

AU 2003213545	A1	A61B-017/58
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Div ex application AU 9952172
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EP 1459689	A2	E
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Div ex application EP 99937310
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Div ex patent EP 1104260

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI

LU MC NL PT SE

AU 2003213545 B2

A61B-017/58

Div ex application AU 9952172

Previous Publ. patent AU 2003213545

Abstract (Basic): WO 200009024 A1

NOVELTY - The surgical tool set is used to introduce material into **bone** to deploy a cannula (30) comprises three subsets of tools. The first subset (14) consists of tools to produce a path through subcutaneous material into the **bone**. Second subset (16) consists of tools to produce cavities of a defined shape in the **bone**. The final tool set (18) provides a syringe style assembly to allow material to be introduced. The whole tool set comes wrapped in a sealed package.

USE - For introducing material into **bone** cavities

ADVANTAGE - Allows controlled introduction of material that prevents excessive material introduction or overflow outside the **bone**

DESCRIPTION OF DRAWING(S) - Surgical tool set

First subset (14)

Second subset (16)

Final subset (18)

Cannula (30)

pp; 73 DwgNo 1/37

Title Terms: TOOL; SET; PLACE; MATERIAL; **BONE**; COMPRISE; SET; CANNULA; **BONE**; SET; CAVITY; SET; FILL; CAVITY; MATERIAL

Derwent Class: P31; P32; P34; S05

International Patent Class (Main): A61B-000/00; A61B-017/56; A61B-017/58; A61M-005/178

International Patent Class (Additional): A61B-017/60; A61F-002/00; A61F-002/46; A61M-037/00

File Segment: EPI; EngPI

8/5/16 (Item 16 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012914992 \*\*Image available\*\*

WPI Acc No: 2000-086828/200007

Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-059975; 1999-371276; 2003-209147; 2003-417635; 2003-697288; 2003-776174; 2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775; 2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRAM Acc No: C00-024188

XRXPX Acc No: N00-068144

**Expandable structures for compacting cancellous bones, or for insertion into the vertebral body of human and animal bones**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: SCRIBNER R M; TALMADGE K D

Number of Countries: 085 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9962416	A1	19991209	WO 99US12120	A	19990601	200007	B
AU 9943250	A	19991220	AU 9943250	A	19990601	200021	
EP 1083836	A1	20010321	EP 99955201	A	19990601	200117	
			WO 99US12120	A	19990601		
NO 200006089	A	20010124	WO 99US12120	A	19990601	200118	
			NO 20006089	A	20001130		
JP 2002516697	W	20020611	WO 99US12120	A	19990601	200253	
			JP 2000551679	A	19990601		
AU 756969	B	20030130	AU 9943250	A	19990601	200319	

NZ 508401	A	20030725	NZ 508401	A	19990601	200357
			WO 99US12120	A	19990601	
AU 2003203814	A1	20030612	AU 9943250	A	19990601	200455 N
			AU 2003203814	A	20030423	
US 20040267271	A9	20041230	US 94188224	A	19940126	200503
			US 97788786	A	19970123	
			US 9888459	A	19980601	
			US 2001837350	A	20010418	

Priority Applications (No Type Date): US 9888459 A 19980601; AU 2003203814 A 20030423; US 94188224 A 19940126; US 97788786 A 19970123; US 2001837350 A 20010418

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9962416 A1 E 54 A61B-017/56

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU 9943250 A Based on patent WO 9962416

EP 1083836 A1 E Based on patent WO 9962416

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

NO 200006089 A A61B-000/00

JP 2002516697 W 48 A61F-002/44 Based on patent WO 9962416

AU 756969 B A61B-017/56 Previous Publ. patent AU 9943250

Based on patent WO 9962416

NZ 508401 A A61B-017/56 Based on patent WO 9962416

AU 2003203814 A1 A61B-017/56 Div ex application AU 9943250

US 20040267271 A9 A61B-017/58 Cont of application US 94188224

CIP of application US 97788786

Cont of application US 9888459

CIP of patent US 6235043

Abstract (Basic): WO 9962416 A1

NOVELTY - An expandable structure (56) comprises a wall made from an elastomeric material and including a region preformed (22) with a normally expanded shape outside **bone**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(A) a method for compacting cancellous bones or for treating a **vertebral** body comprises introducing or inserting into the **bone** the invented device, and expanding the wall inside the **bone** from the normally expanded shape to a further expanded shape to reached a given inflation volume; and

(B) a method for manufacturing the invented device comprises applying heat and pressure to the tube of an elastomeric material to form a region having a normally expanded shape outside **bone**.

USE - The invention is used for compacting cancellous **bone**, or for the insertion of **vertebral** body of human and animal. The invention can be used to create cavities in aiding the delivery of therapeutic substances.

ADVANTAGE - The invention upon exposure to heat and pressure, can undergo controlled expansion and further distention in cancellous **bone**, without failure, while exhibiting superior resistance to surface abrasion and puncture when contacting cancellous **bone**. The invention can be used to improve insertion of solid material in defined shapes, like hydroxyapatite and components in total joint replacement.

DESCRIPTION OF DRAWING(S) - The figure shows an enlarged view of the expandable structure.

Elongated tube (16)  
End regions (18, 20)  
Preformed region (22)  
Catheter tube (50)  
Expandable structure (56)  
Interior bore (60)  
pp; 54 DwgNo 4A/16

Title Terms: EXPAND; STRUCTURE; COMPACT; **BONE** ; INSERT; **VERTEBRA** ; BODY; HUMAN; ANIMAL; **BONE**

Derwent Class: A96; P31; P32; P34

International Patent Class (Main): A61B-000/00; A61B-017/56; A61B-017/58; A61F-002/44

International Patent Class (Additional): A61F-002/28; A61L-027/00

File Segment: CPI; EngPI

8/5/17 (Item 17 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012637410 \*\*Image available\*\*

WPI Acc No: 1999-443514/199937

XRPX Acc No: N99-330789

**Combination orthopedic surgical broaching and reaming tool**

Patent Assignee: STRYKER TECHNOLOGIES CORP (STRY-N)

Inventor: **RALPH C R**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5931841	A	19990803	US 9866243	A	19980424	199937 B

Priority Applications (No Type Date): US 9866243 A 19980424

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5931841	A	9	A61B-017/16	

Abstract (Basic): US 5931841 A

NOVELTY - The tool (50) has a cylindrical part with a proximal shank portion (52) adapted to internally receive a handle (62), axially spaced parallel broaching teeth (54), and reaming teeth (56). The reaming teeth transect at least some of the broaching teeth.

USE - To prepare bones for orthopedic implants.

ADVANTAGE - Allows surgeon to remove some, but not all, of the cancerous **bone** when preparing a canal for receipt of the stem of an

implant.

DESCRIPTION OF DRAWING(S) - The drawing shows a side elevation of the tool.

Shank portion (52)  
Broaching teeth (54)  
Reaming teeth (56)  
Handle (62)  
pp; 9 DwgNo 7/13

Title Terms: COMBINATION; SURGICAL; BROACH; REAM; TOOL

Derwent Class: P31

International Patent Class (Main): A61B-017/16

File Segment: EngPI

8/5/18 (Item 18 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012374604 \*\*Image available\*\*

WPI Acc No: 1999-180711/199915

Related WPI Acc No: 2002-075639

XRPX Acc No: N99-132737

**Assembly for injecting flowable material, such as cement, into bone**

Patent Assignee: KYPHON INC (KYPH-N)

Inventor: REILEY M A; REO M L; SCHOLTEN A; SCRIBNER R M

Number of Countries: 083 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9908616	A1	19990225	WO 98US11098	A	19980601	199915	B
AU 9877111	A	19990308	AU 9877111	A	19980601	199929	
US 6048346	A	20000411	US 97910809	A	19970813	200025	
EP 1003433	A1	20000531	EP 98925082	A	19980601	200031	
			WO 98US11098	A	19980601		
CN 1276711	A	20001213	CN 98807773	A	19980601	200118	
JP 2001514922	W	20010918	WO 98US11098	A	19980601	200169	
			JP 2000509362	A	19980601		
US 20020082605	A1	20020627	US 97910809	A	19970813	200245	
			US 2000496987	A	20000202		
			US 200116339	A	20011210		
US 6719761	B1	20040413	US 97910809	A	19970813	200425	
			US 2000496987	A	20000202		
US 6814736	B2	20041109	US 97910809	A	19970813	200474	
			US 2000496987	A	20000202		
			US 200116339	A	20011210		

Priority Applications (No Type Date): US 97910809 A 19970813; US 2000496987 A 20000202; US 200116339 A 20011210

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9908616 A1 E 53 A61B-017/56

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

AU 9877111 A Based on patent WO 9908616

US 6048346 A A61B-017/58

EP 1003433 A1 E Based on patent WO 9908616

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

JP 2001514922 W 49 A61M-025/00 Based on patent WO 9908616

US 20020082605 A1 A61F-002/00 Div ex application US 97910809

Div ex application US 2000496987

Div ex patent US 6048346

US 6719761 B1 A61M-039/00 Cont of application US 97910809

Cont of patent US 6048346

US 6814736 B2 A61M-039/00 Cont of application US 97910809

Div ex application US 2000496987

Cont of patent US 6048346

Abstract (Basic): WO 9908616 A1

NOVELTY - The assembly comprises a tube body including an interior bore to carry a flowable material. The tube body includes a dispensing end (32) communicating with an opening in the dispensing end communicating with the bore to dispense the material flow. There is also a cutting element (100), comprising a single wire filament,

extending in the opening to allow passage of the material and to sever the material flow in response to rotation of the tube body.

USE - For treatment of **bone** conditions in humans or animals.

ADVANTAGE - Provides greater control over the placement of the cement into the **bone**.

DESCRIPTION OF DRAWING(S) - The figure shows the assembly in use.

dispensing end, (32)

cutting element. (100)

pp; 53 DwgNo 5/22

Title Terms: ASSEMBLE; INJECTION; FLOW; MATERIAL; CEMENT; **BONE**

Derwent Class: P31; P32; P34

International Patent Class (Main): A61B-017/58; A61F-002/00; A61M-025/00; A61M-039/00

International Patent Class (Additional): A61B-017/56; A61L-027/00; A61M-025/01

File Segment: EngPI

8/5/19 (Item 19 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012253868 \*\*Image available\*\*

WPI Acc No: 1999-059975/199905

Related WPI Acc No: 1995-275278; 1997-051751; 1998-593868; 1999-371276; 2000-086828; 2003-209147; 2003-417635; 2003-697288; 2003-776174; 2003-831673; 2004-068737; 2004-090534; 2004-303245; 2004-570775; 2004-615074; 2004-775310; 2005-424623; 2005-424624; 2005-434443

XRAM Acc No: C99-017775

XRXP Acc No: N99-044536

Tool for treating diseased bone using expandable body - includes expandable body inserted through guide tube in collapsed state, and nozzle carried by guide tube for insertion into interior volume of bone

Patent Assignee: KYPHON INC (KYPH-N); REILEY M A (REIL-I); SCHOLTEN A (SCHO-I); SCRIBNER R M (SCRI-I); TALMADGE K D (TALM-I)

Inventor: REILEY M A; REO M L; SCHOLTEN A; SCRIBNER R M ; TALMADGE K D

Number of Countries: 083 Number of Patents: 036

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9856301	A1	19981217	WO 98US11386	A	19980601	199905	B
AU 9877212	A	19981230	AU 9877212	A	19980601	199920	
US 5972015	A	19991026	US 97911827	A	19970815	199952	
NO 9905988	A	20000208	WO 98US11386	A	19980601	200019	
			NO 995988	A	19991206		
EP 987991	A1	20000329	EP 98925208	A	19980601	200020	
			WO 98US11386	A	19980601		
CZ 9904442	A3	20000816	WO 98US11386	A	19980601	200048	
			CZ 994442	A	19980601		
SK 9901677	A3	20000711	WO 98US11386	A	19980601	200050	
			SK 991677	A	19980601		
CN 1259851	A	20000712	CN 98805973	A	19980601	200054	
HU 200001956	A2	20001030	WO 98US11386	A	19980601	200064	
			HU 20001956	A	19980601		
US 6248110	B1	20010619	US 94188224	A	19940126	200137	
			US 95485394	A	19950607		
			US 96659678	A	19960605		
			US 97871114	A	19970609		
US 6280456	B1	20010828	US 97911827	A	19970815	200151	
			US 99404662	A	19990923		
KR 2001013613	A	20010226	KR 99711623	A	19991209	200154	
US 20010041896	A1	20011115	US 94188224	A	19940126	200172	

			US 95485394	A	19950607	
			US 96659678	A	19960605	
			US 97871114	A	19970609	
			US 97911805	A	19970815	
			US 2001884365	A	20010619	
JP 2001517997	W	20011009	WO 98US11386	A	19980601	200174
			JP 99502800	A	19980601	
NZ 501338	A	20011026	NZ 501338	A	19980601	200176
			WO 98US11386	A	19980601	
US 20010049531	A1	20011206	US 94188224	A	19940126	200203
			US 95485394	A	19950607	
			US 96659678	A	19960605	
			US 97871114	A	19970609	
			US 2001754451	A	20010104	
US 20020013600	A1	20020131	US 97911827	A	19970815	200210
			US 99404662	A	19990923	
			US 2001918942	A	20010731	
AU 752440	B	20020919	AU 9877212	A	19980601	200272
NZ 513472	A	20021220	NZ 501338	A	19980601	200309
			NZ 513472	A	19980601	
NZ 513473	A	20021220	NZ 501338	A	19980601	200309
			NZ 513473	A	19980601	
NZ 513469	A	20030131	NZ 501338	A	19980601	200319
			NZ 513469	A	19980601	
NZ 513470	A	20030131	NZ 501338	A	19980601	200319
			NZ 513470	A	19980601	
NZ 513471	A	20030131	NZ 501338	A	19980601	200319
			NZ 513471	A	19980601	
US 6623505	B2	20030923	US 97911827	A	19970815	200364
			US 99404662	A	19990923	
			US 2001918942	A	20010731	
US 20030195547	A1	20031016	US 97911827	A	19970815	200369
			US 99404662	A	19990923	
			US 2001918942	A	20010731	
			US 2003436551	A	20030513	
AU 2002323726	A1	20030403	AU 9877212	A	19980601	200432 N
			AU 2002323726	A	20021219	
AU 2002323727	A1	20030327	AU 9877212	A	19980601	200432 N
			AU 2002323727	A	20021219	
AU 2002323729	A1	20030403	AU 9877212	A	19980601	200432 N
			AU 2002323729	A	20021219	
AU 2002323730	A1	20030403	AU 9877212	A	19980601	200432 N
			AU 2002323730	A	20021219	
AU 2002323731	A1	20030403	AU 9877212	A	19980601	200432 N
			AU 2002323731	A	20021219	
AU 2002323730	B2	20040930	AU 9877212	A	19980601	200480 N
			AU 2002323730	A	20021219	
IL 133257	A	20041110	IL 133257	A	19980601	200480
CN 1557257	A	20041229	CN 98805973	A	19980601	200523
			CN 200436810	A	19980601	
US 6899719	B2	20050531	US 94188224	A	19940126	200536
			US 95485394	A	19950607	
			US 96659678	A	19960605	
			US 97871114	A	19970609	
			US 2001754451	A	20010104	
US 20050119662	A1	20050602	US 94188224	A	19940126	200537
			US 95485394	A	19950607	
			US 96659678	A	19960605	
			US 97871114	A	19970609	
			US 2001754451	A	20010104	
			US 2004958600	A	20041005	

AU 2002323726 B2 20050616 AU 9877212 A 19980601 200545  
AU 2002323726 A 20021219

Priority Applications (No Type Date): US 97911827 A 19970815; US 97871114 A 19970609; US 97911805 A 19970815; US 94188224 A 19940126; US 95485394 A 19950607; US 96659678 A 19960605; US 99404662 A 19990923; US 2001884365 A 20010619; US 2001754451 A 20010104; US 2001918942 A 20010731; US 2003436551 A 20030513; AU 2002323726 A 20021219; AU 2002323727 A 20021219; AU 2002323729 A 20021219; AU 2002323730 A 20021219; AU 2002323731 A 20021219; US 2004958600 A 20041005

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
WO 9856301 A1 E 140 A61B-017/56

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

AU 9877212 A Based on patent WO 9856301

US 5972015 A A61M-029/00

EP 987991 A1 E Based on patent WO 9856301

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

CZ 9904442 A3 Based on patent WO 9856301

HU 200001956 A2 Based on patent WO 9856301

US 6248110 B1 A61B-017/58 CIP of application US 94188224

CIP of application US 95485394

CIP of application US 96659678

US 6280456 B1 A61M-029/00 Div ex application US 97911827

Div ex patent US 5972015

US 20010041896 A1 A61B-017/58 CIP of application US 94188224

CIP of application US 95485394

CIP of application US 96659678

CIP of application US 97871114

Cont of application US 97911805

CIP of patent US 5827289

CIP of patent US 6248110

JP 2001517997 W 125 A61M-025/00 Based on patent WO 9856301

NZ 501338 A Div in patent NZ 513470

Based on patent WO 9856301

US 20010049531 A1 A61B-017/58 CIP of application US 94188224

CIP of application US 95485394

CIP of application US 96659678

Cont of application US 97871114

CIP of patent US 5827289

Cont of patent US 6248110

US 20020013600 A1 A61M-029/00 Div ex application US 97911827

Div ex application US 99404662

Div ex patent US 5972015

Div ex patent US 6280456

AU 752440 B A61B-017/56 Previous Publ. patent AU 9877212

Based on patent WO 9856301

NZ 513472 A A61B-017/56 Div ex application NZ 501338

Div ex patent NZ 501338

NZ 513473 A A61B-017/56 Div ex application NZ 501338

Div ex patent NZ 501338

NZ 513469 A A61B-017/56 Div ex application NZ 501338

Div ex patent NZ 501338

NZ 513470 A A61B-017/56 Div ex application NZ 501338

Div ex patent NZ 501338

NZ 513471	A	A61B-017/56	Div ex application NZ 501338 Div ex patent NZ 501338
US 6623505	B2	A61M-029/00	Div ex application US 97911827 Div ex application US 99404662 Div ex patent US 5972015 Div ex patent US 6280456
US 20030195547 A1		A61M-029/00	Div ex application US 97911827 Div ex application US 99404662 Div ex application US 2001918942 Div ex patent US 5972015 Div ex patent US 6280456
AU 2002323726 A1		A01N-057/30	Div ex application AU 9877212
AU 2002323727 A1		A61B-017/56	Div ex application AU 9877212
AU 2002323729 A1		A01N-057/30	Div ex application AU 9877212
AU 2002323730 A1		A01N-057/30	Div ex application AU 9877212
AU 2002323731 A1		A01N-057/30	Div ex application AU 9877212
AU 2002323730 B2		A61B-017/56	Div ex application AU 9877212 Previous Publ. patent AU 2002323730
IL 133257	A	A61B-017/56	Based on patent WO 9856301
CN 1557257	A	A61B-017/56	Div ex application CN 98805973
US 6899719	B2	A61B-017/56	CIP of application US 94188224 CIP of application US 95485394 CIP of application US 96659678 Cont of application US 97871114 CIP of patent US 5827289 Cont of patent US 6248110
US 20050119662 A1		A61B-017/00	CIP of application US 94188224 CIP of application US 95485394 CIP of application US 96659678 Cont of application US 97871114 Div ex application US 2001754451 CIP of patent US 5827289 Cont of patent US 6248110
AU 2002323726 B2		A61B-017/56	Div ex application AU 9877212 Previous Publ. patent AU 2002323726

Abstract (Basic): WO 9856301 A

Tool for inserting into bone comprising cortical bone containing some cancellous bone (32), has a guide tube (72), and an expandable body (56) inserted through guide tube in collapsed state. A nozzle is carried by guide tube for insertion into interior volume (30) of the bone.

A first lumen (80) is provided to convey medium to expandable body to compact cancellous bone and form cavity in interior volume. A second lumen is connected to nozzle to convey material for discharge into cavity. Four systems, six devices and a sterile kit are also independently claimed.

USE - Treating diseased cancellous bone by expanding a body within the bone to support cortical bone and prevent fracture.

ADVANTAGE - The expandable body can be inserted more easily than known methods. It can be used in vertebrae. It can be inserted where access is not along the axis. It can be inserted and deployed in non-symmetrical volumes. A long cavity can be filled. Therapeutic materials can be delivered within the cavity. Material, including bone marrow, can be flushed from the cavity.

Dwg.5K1/71

Title Terms: TOOL; TREAT; DISEASE; BONE; EXPAND; BODY; EXPAND; BODY; INSERT; THROUGH; GUIDE; TUBE; COLLAPSE; STATE; NOZZLE; CARRY; GUIDE; TUBE; INSERT; INTERIOR; VOLUME; BONE

Derwent Class: A96; D22; P31; P32; P34

International Patent Class (Main): A01N-057/30; A61B-017/00; A61B-017/56; A61B-017/58; A61M-025/00; A61M-029/00

International Patent Class (Additional): A61B-019/00; A61F-002/00;  
A61F-002/28; A61L-029/00; C07F-009/24  
File Segment: CPI; EngPI  
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